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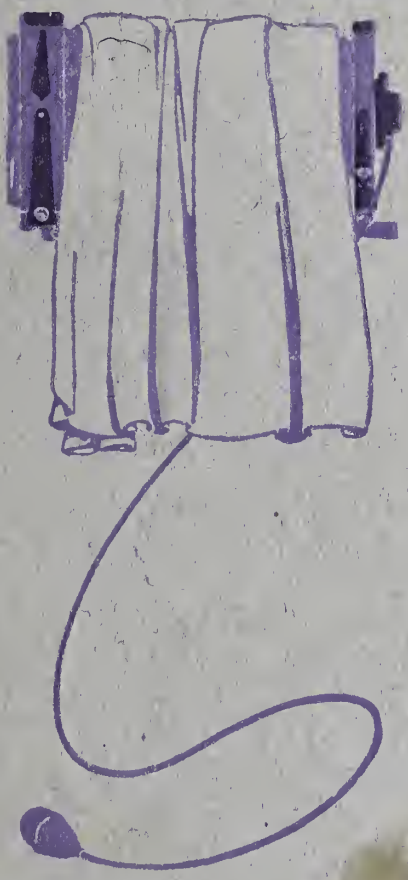

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CAMERA CRAFT

A Photographic Monthly

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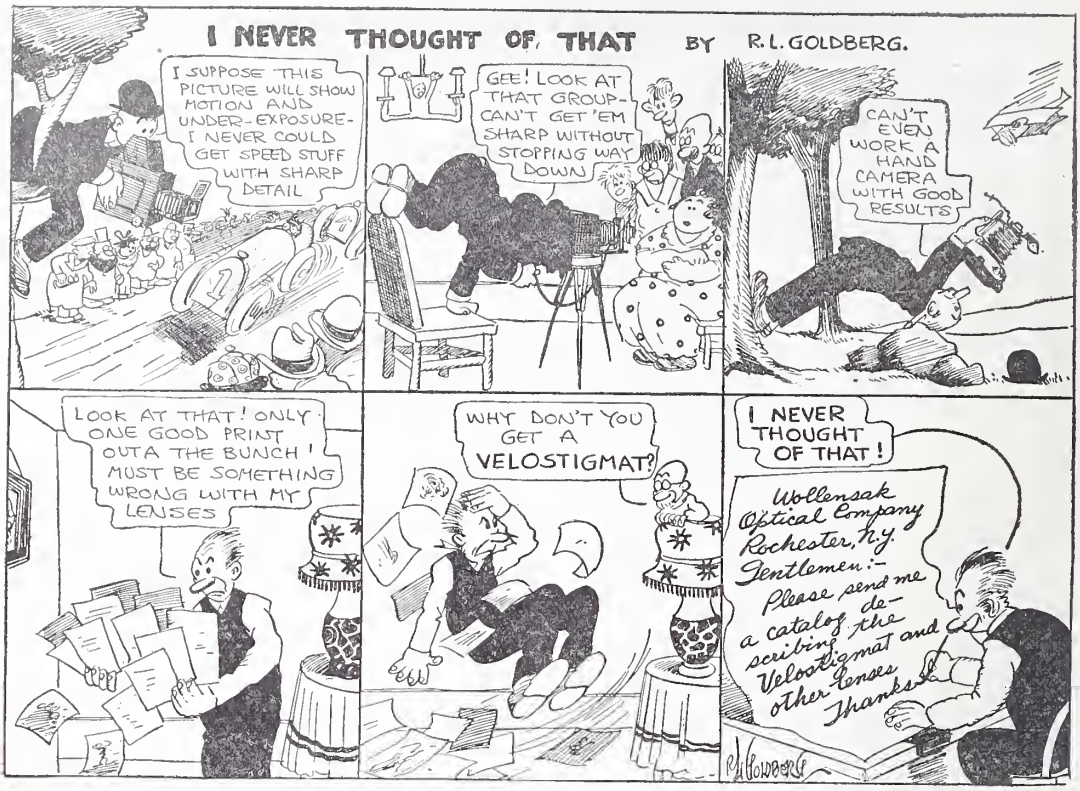
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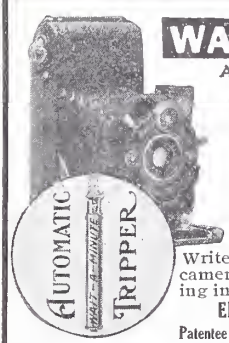

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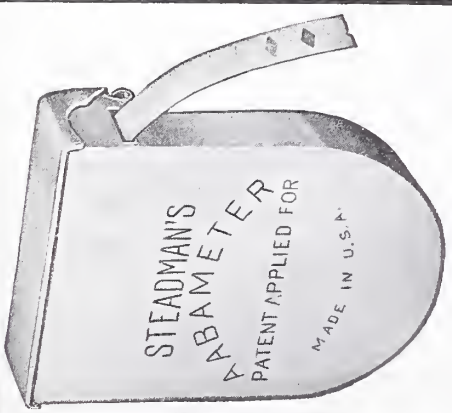

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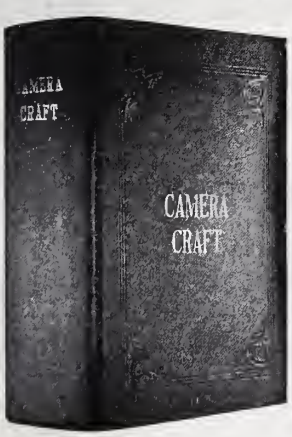

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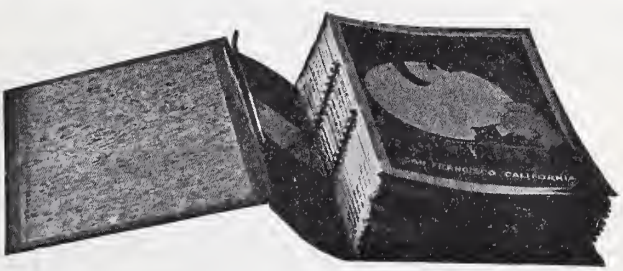

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A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXVII JANUARY, 1920 No. 1

Composition with the Scissors

By William Bush

With Illustrations by the Author

A few weeks ago I ventured forth on what, to me at least, was quite a new expedition in photography. I had made, with more or less success, landscapes and seascapes, beach scenes and wharf views, street and roadway scenes, sunshine and shadow effects, groups and single individuals, architectural subjects and interiors, and of course had to try flower photography. Now, although I have been following the delightful and interesting pastime of amateur photography for quite a while, I had never ventured an attempt at making pictures of flowers. So far as my experience goes, I have concluded that the particular subjects I selected for my first attempt are about the most difficult of their kind for successful pictorial accomplishment. Some of my readers are, no doubt, familiar with this branch of photography, but I feel quite sure there are a good many who have not yet made the attempt to photograph flowers of any description, especially the water lily variety, so I propose, in this article, to try and tell these last how they may escape many of the difficulties I had to overcome before meeting with any success.

Water lilies, as I have suggested, are somewhat difficult subjects to secure, and when I finally succeeded in obtaining a number of very fine specimens of various colors, red, white and yellow, I congratulated myself upon my good fortune and started for home with the idea that all I had to do was to reach there, set up my camera, arrange the lilies in an artistic manner and make the exposure, doing it all very leisurely. My! it seemed so easy that, in my mind, the successful pictures were an accomplished fact.

My specimens were secured in the morning of a hot day in August; they were taken from the pond, carefully wrapped in wet paper and then completely covered with dry paper, preparatory to my joyous hour and a half ride home on the street cars. But alas! When I arrived home my lilies were in no shape to serve as subjects from which to make photographs, being badly wilted and with their flowers closed. And right here there is one peculiarity of water lilies that deserves mention. Many of them will present perfect blossoms for three or even four days, but only opening as the sun mounts high in the heavens and invariably closing as it starts downward in the west. It generally lacks only an hour or a little more of being noon, on a bright, sunny morning, when they become completely open, and about four to five hours later they will commence closing, remaining closed until the hot sun brings them out on the following day. So if one wishes to secure good pictures of growing water lilies, he must not expect to select the time for side-lighting effects, with the proper shadows, for at such times they will be only partly open. Another of their peculiarities is that the blossoms of the white variety float on the surface of the water, while the colored or the red, blue and yellow ones, throw up straight stalks or stems, holding the blossoms from fifteen to eighteen inches above the surface. I am being this explicit in order that my amateur friends may more clearly understand what follows. I frequently read articles in the various magazines in which the writer shows us what he has accomplished; but, though we may be deeply interested in the subject, we often fail to understand, from his writing, how the work was done. I shall try to show, as nearly as I possibly can, how the illustrations that accompany this article were made, so that any reader of the magazine who knows how to make a good negative and how to copy a print, may tackle a like job and feel assured of success.

First of all, the work must be done in the daytime, when the light is strong and the flowers are out full. When the lilies are gathered their thick stalks are full of water and perfectly stiff, but as soon as they are taken from the water, evaporation commences, the stems quickly become limp and the blossoms gradually close up. To remedy this the flowers must be kept in water until all the preparations are complete. The ideal place for the work is on the north side of the house, in a well sheltered position. For copying, I use a home-made contrivance of my own design, one that I have found very effective. Roughly speaking, it consists of a board, ten inches wide and six feet long, used perpendicular, with another piece of board with its end cut square, about four feet long, securely nailed at right angles to it at a convenient height, say about the height of a tripod. This forms a shelf that is securely braced so that I can set the arrangement up bodily against the sides of the house where I have an upright mark and two screw holes that enable me to set it up and take it down as quickly as a person can set his camera on a tripod. A small box stands on the outer end of the horizontal board or shelf, and that on this I place my camera, while the subject for copying is fixed on that part of the upright board coming above the shelf. Small objects to be photographed can be placed on the house end of the horizontal board, the camera being shifted back and forth to get the proper focus.

THE THREE COMPOSITE PRINTS MADE FROM THE SEVEN ORIGINALS

I experimented quite a little with backgrounds before coming to a decision; I borrowed the blue curtains from the windows and the red hangings from a doorway; also a gray window shade; exposed two or three plates on each, and finally decided that my focusing cloth of black velvet was the most suitable for my purpose. This experimenting accounts for the slightly varying depth of tone in the different backgrounds in the made-up pictures, necessitating rather contrasty prints in order to get even results.

I found it no easy matter to arrange and group the flowers in a satisfactory manner; the stiff stems, when they were fresh from the water, made it very difficult to get them into the desired position to produce the best results, while the warm atmosphere caused them to wilt very quickly. To avoid this last trouble, I first put a few common flowers in position in the desired container, obtained a good sharp focus thereon, and then replaced these with the lilies and made the exposure. I also put crumpled-up green tissue paper around the stems in the bowls to steady the flowers, as they showed a decided inclination to slip sideways or droop forward before I could make the exposure. With the lighting I had,—a bright day, slightly cloudy, and working during the middle of the day in the shade of the house, the exposure, with stop f-22, was one to

THE SEVEN ORIGINAL PRINTS THAT SEEMED SOMEWHAT STIFF

one and a half seconds, the red and yellow flowers requiring more time than the white ones.

Coming more closely to the subject of these illustrations, as the above applies to the original negatives made direct from the lilies, let me explain how the finished pictures came about. While I felt, on making prints from the original negatives, a certain amount of elation over what I had accomplished in my new venture against unexpected difficulties, I was far from being pleased with the results, considering them as compositions. Submitting them to one critic, I was overwhelmed with a long discourse on the importance of variety in spacing and proper arrangement in spotting, some of which I could understand and some not. But a more practical advisor, finding that I did know

SHOWING HOW ONE OF THE COMPOSITES WAS PATCHED TOGETHER

something about pleasing arrangement and that the difficulties encountered had prevented the carrying out of my ideas, suggested that I study the matter and fortify myself for another attempt by cutting apart the various components of my several pictures and rearrange them in a more deliberate manner than the actual subjects permitted.

Equipped with a pair of scissors and a pot of paste, I cut the prints into sections, as their parts were needed, cutting out individual flowers to the outline, when necessary; and then, with pieces of the black paper that comes around my plates for a background, I made more permanent my selected groupings. In other words, I built up a new set of groups by pasting the cut-out portions or individual flowers on the black paper. Realizing that the bowls and other containers occupied too large a portion of the pictures, the opportunity of removing sections and thus minimizinig their obtrusiveness was also accepted. The tall glass was easily made shorter, the wide bowl more narrow, and the white dish less dominant.

This done, the idea came to me, why not set these built-up pictures before

my camera and produce new negatives? The thing was tried and the results are shown herewith. The new negatives were made just before noon of a bright day, with an exposure of one and a half seconds, using stop f-22. One of these negatives was made without a glass over the patched-up print and the curl of the paper presented different surfaces to the light, so that, printed not too strong on Solio, it shows how the building-up was done. The others, placed under a clear sheet of glass and with more even lighting, do not show these defects. They show, however, what can be accomplished by a little ingenuity, plus patience and perseverance.

Some of my readers may ask: Does it pay? I think it does. For myself

ONE OF THE COMPOSITE PRINTS AFTER A LITTLE RETOUCHING

I can say that it opens up new vistas and new possibilities in the way of studying arrangement and composition. One can utilize this plan in building up new groupings from the material in prints already made. As a help in the formation of satisfactory groups when the flowers are again at hand, the time is well spent, as the results facilitate the actual handling of such difficult subjects. Moreover, why not apply the idea to other subjects than flowers? We often find ourselves wishing that some one would come into view, when about to expose on a landscape, feeling that a figure, particularly if at the right place, would greatly improve the picture. A man returning from work; a fisherman standing beside a stream; a house gracing the top of a hill, and so on. A painter does not hesitate to put such figures into his pictures whenever he feels it will add to the beauty of the scene; then why not the photographer?

As I have before stated my object was to form groups, in a rough sort of way, as a form of educational exercise that would prepare me to make better groupings with less loss of time, to say nothing of patience, when another

opportunity presented. But as I progressed with my experiments, new possibilities were discovered, and I came to the conclusion that good finished pictures might easily be built up in this way. By closely examining these illustrations of the original pictures and the built-up results, particularly in the one given a little retouching, the improvement can be easily seen. The prints reproduced herewith were all, with the one exception, made from straight negatives without any retouching, either on negative or print. The only control exercised was that secured by using the grade of Velox paper, hard, soft or contrasty, best adapted to the securing of the desired result. The perfected print, the one of the lilies in the white dish, was made from the negative after it was carefully touched up by a friend on purpose to show what could be accomplished by more expert workmanship.

For such workers as do not care to attempt retouching of the negative, the same object may be attained by making an enlargement, working thereon with a pencil of non-shining lead, perhaps a paper stump as well, and an ordinary pen-knife used as a scraper to introduce high-lights or lighten too dark portions. Although even this requires some skill, the size of the enlargement permits of a degree of crudity in the work that would not be allowable in the smaller negative to be printed by contact. When the enlargement is properly worked up, put a plate in the camera and make a new negative. I made such a negative only a short time ago from a 20x30 copy. A friend wanted a number of grouped pictures for distribution, so I placed them in position on the 20x30 card, worked in some border effects, and then made him a 5x7 negative that gave fine prints very suitable for his purpose. Of course, the worker who understands the carbon or gum process can smooth up his backgrounds or hide other defects in his negatives, and make it all appear very artistic, but the ordinary amateur must be astisfied with what he is accustomed to work with, viz., good old Velox.

I should, perhaps, explain that all my work of this kind is done on the north side of a low building against which I fix my copying arrangement. This gives me a strong lighting from one side as well as from overhead. On the other side, when needed, I use a reflector, and always a clean, white blotting paper on the stand below and in front of the copy, this last to reflect the light upwards. This gives practically even illumination from all sides, resulting in good negatives that do not have the granularity that comes from uneven lighting. It is necessary, also, to expose as nearly correct as possible; and, in case of patched-up copy, a plate of good, clear glass should be used to hold all flat and snug. One should be careful to carry developing just far enough to assure a negative that is inclined to thinness rather than otherwise, and then select the grade of paper to suit. A little care, a little patience, and you will not regret the time spent. I certainly wish you the greatest possible success.

To carry on the feelings of childhood into the powers of manhood, to combine the child's sense of wonder which the appearances of every day, for perhaps forty years, has rendered familiar; this is the character and privilege of genius, and one of the marks which distinguish genius from talent.—Coleridge.

Carbon, Its Decorative Application

By Edgar Felloes

With an Illustration by the Author

In my preceding article, "Elementary Carbon Printing," I gave an account of the work which is necessary for the novice to understand before proceeding to its employment for decorative purposes. Manufacturers of tissue supply a large assortment of colors, but it will be necessary to order from the importers, as few dealers are likely to store any colors but those usually required for general trade purposes. Under these circumstances, a knowledge of the home preparation of tissue will be useful, and the worker may thus suit himself as to any shade of color.

We will first consider the preparation of the jelly, which is made from a gelatine having certain qualities of solubility. Some operators combine different makes of gelatine to secure this end; but, as I have used Nelson's No. 1 with success, I will confine my remarks to that particular brand. The following is the formula:

Nelson's gelatine, No. 1	1 ounce
Rock or sugar candy	¼ ounce
Water, cold	4 ounces

Add the water and sugar to the gelatine, and allow the latter to soak until thoroughly soft. It will be necessary to push the gelatine down into the liquid a few times, unless one takes the trouble to cut it up into short lengths. Use tinware in preference to glass containers to avoid breakage. Take the cup of softened gelatine and stand it in hot water, stirring gently until all is thoroughly mixed. Where they can be procured, dry colors finely ground are preferable to any other. But I have had good results generally with colors ground in water, sold in glass jars; though at times I have met with samples hardly fine enough. For experimental work, or work on a small scale, the moist water colors sold in tubes answer the purpose very well, the only objection being the price.

On a plate of glass, having selected suitable colors, mix up the tint required with a palette-knife, the total quantity to equal the contents of half a tube. With a tablespoon take out some of the liquid gelatine, place it on the glass slab and mix half of the colors with it; work the two together until the liquid jellies, when it should be scraped up and returned to the cup to be remelted. The amount of pigment required is best ascertained by test. Some colors are naturally more transparent than others, and in that case more of the pigment must be added than where they possess greater opacity. The blues and browns are classed as semi-transparent. The blacks, light red, Venetian red, and the ochres have good body.

Having added the pigmented gelatine to the stock in the cup, mix it well, but

do not froth it; then make the first test. Take a narrow strip of white papr, bend up about an inch of it from the end and touch that end on the liquid, the object being to have a coat of the pigmented gelatine on one side of the strip. When this is chilled, examine it, and you will see the pigment in little particles held together or buried in the gelatine. This will show that there has not been sufficient pigment added. Repeat the process of mixing gelatine and pigment together on the glass till we have sufficient pigment added to make an opaque coating on the paper strip, which should be examined occasionally by transmitted light, that is, by holding it up before the light and looking through it. If the shadow of a matchstick held on the paper side of the coated strip just shows, it indicates that there is sufficient pigment in the solution. For transparency work, such as designs for lamp shades, about one-quarter more pigment should be added. By attending to these details, there will be no difficulty in judging the amount of pigment necessary.

I will here draw the worker's attention to the advantage of this more heavily pigmented gelatine for prints from thin negatives, as by working with a weak sensitizer, as described in my former article, stronger effects may be secured.

Presuming that the pigmented gelatine is ready, we must now strain or filter it. Procure a tin funnel and line it with a piece of fine muslin; place the funnel in a clean tin receptacle surrounded with warm water. It is important that the stem of the funnel should touch the bottom or side of the container so that the gelatine in filtering does not fall in drops, as this would produce a crop of bubbles later, causing no end of trouble. With the funnel in place as described, pour the pigmented gelatine on the muslin strainer and place the whole in a warm, not hot, oven. The gelatine solution, in spite of its viscidity, will soon filter through; after which the mixture is ready for coating. I wish to impress the worker with the importance of avoiding air bubbles, as they are difficult to remove, especially when small, and highly detrimental.

There are various ways of coating the paper support, with the pigmented gelatine. I will describe two, but recommend the first for workers on a small scale on account of its economy. The paper we need for our tissue must fill two requirements—it must be fairly strong and also porous; a strongly sized paper is therefore to be avoided. For large work, cartridge paper is excellent; but the paper known as "blank stock," to be secured at dealers in wall papers, will answer our requirements perfectly. It is sold in rolls and is cheap. Next to the paper, we shall need a printing frame, say 8x10 inches; one with the back fitting easily is best. This may be secured second-hand; also four pieces of glass—old negatives—to fit the frame. Cut from the roll of paper four pieces about 9x11 inches in size. Fill a tray with hot water and drop into it one of the glass plates. Leave it there a few moments to become of the same temperature as the water. Now take one of the pieces of paper and immerse it in the same tray and so arrange over the glass that the same proportion of margin overhangs all four sides of the glass plate. Lift both out together and, with a squeegee, remove all surplus water from the surface of the paper and, if any air bubbles show between the paper and glass, they must also be removed. Also mop off the moisture from the back of the glass, at the same time turning down the

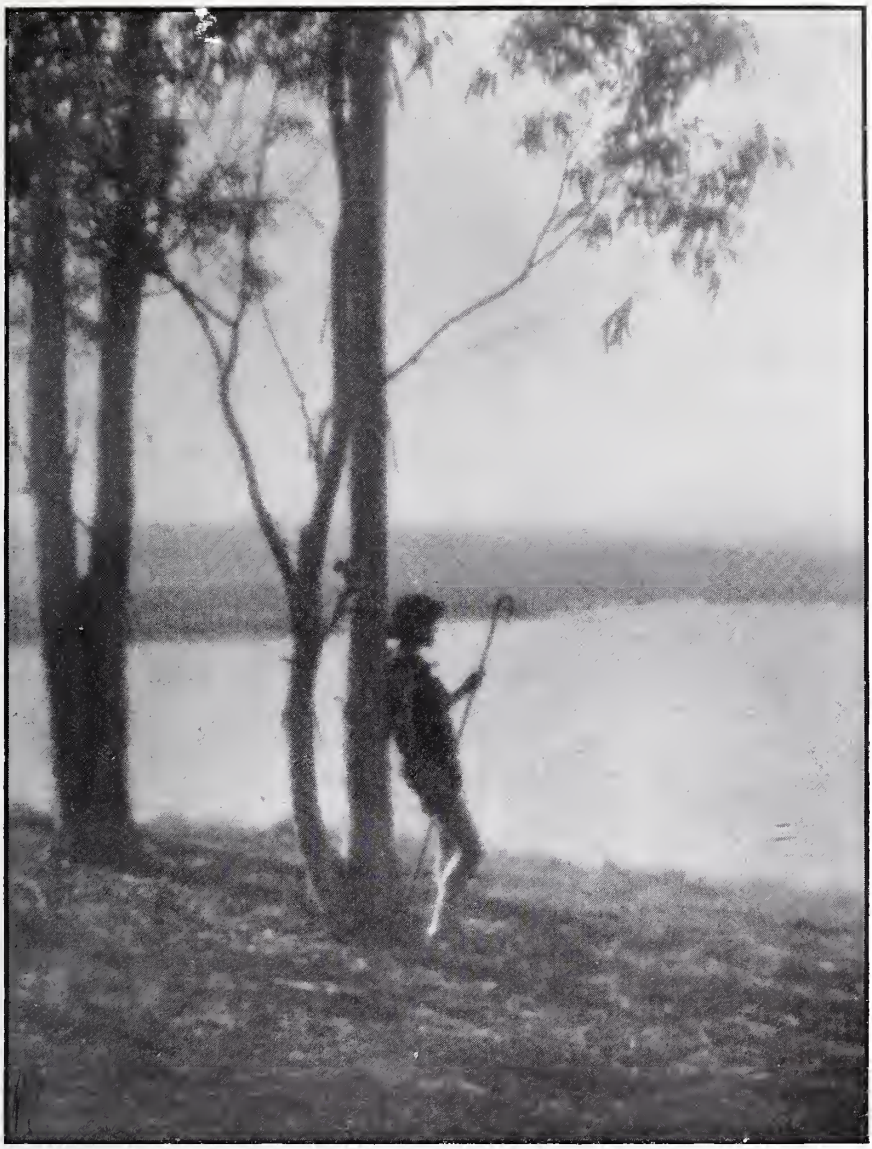
JUST A BIT OF WILD OREGON LANDSCAPE

overhang or margin of the paper and placing immediately in the printing frame, the glass side uppermost, and a waterproof backing on top. Now put in the back of the frame and close it. All these manipulations should be done with reasonable haste, as we wish to coat the paper while the glass is warm. To this end the backing should be warmed also. Hold the printing frame on the palm of the left hand, paper side uppermost, and carefully pour about one ounce of the pigmented gelatine upon it. With the aid of a piece of card and gentle tilting of the frame, the gelatine can be quickly spread over the paper surface; which done, place the frame on a level table to set the gelatine. It is, of course, necessary to have an even coating. In a few minutes it will have set. Turn the frame face down and remove the back, also the water-proof sheet. Do not attempt to take the glass out of the frame just yet, but lift up the paper edgings all around the glass and spread a little gum or paste on them. This done, turn them down again on to the glass. With the hand on the glass, turn the frame over and, with a blunt pointed pocket knife, cut through the jelly close up to the frame all around, lift the frame off, and we have in our hand a sheet of glass holding the tissue smoothly with the edges of the paper securely fastened to the under side of the plate. Place the whole in a plate-rack to dry. One should make it a point during the drying process to reverse the plate, that is, to turn it on its opposite edge, so that what was the bottom corner is uppermost, otherwise all the moisture will gravitate to the lower corner and the supporting paper

will be too tender there to stand the pull of the drying gelatine. Or the plate may be placed in a horizontal position to dry, provided we protect it from dust. It will be apparent to the worker that a cold room is unsuitable for the process of coating. If conditions are suitable, plates can easily be prepared and coated in two minutes. When the tissue is dry, pack it away with the glass until needed for sensitizing.

To sensitize by the bath method, remove the paper from the glass and proceed as directed. But, when using the spirit sensitizer, coat the tissue while attached to the glass, where it will dry perfectly flat. When dry, detach and print.

The following is the second way of making tissue. It is useful where one needs it in quantity. Paper may easily be coated by this method in six-foot lengths. two at a time. Procure a brass tube three-quarters of an inch in diameter, its length being about two inches greater than the width of the paper to be coated. Also procure two metal washers, each one inch and a quarter in diameter; and with two wooden plugs at the same time closing up the ends of the tube. We now have something like the spool on which the film of our hand cameras is wound. We next need a rather deep tray, to be tilted in another tray—trough-like —the outer tray holding hot water, to be kept hot with a small stove. The inner or tilted tray is to hold the pigmented gelatine in liquid form. Naturally we need our jelly in greater quantity, but its preparation is the same as already described. As regards the pigment, it would be advisable to use that sold in the glass jars, or dry powder; whichever it is, it should be finely ground. If the pigment in the jars is too liquid, spread some of it on blotting paper to absorb the surplus moisture. It will be necessary to use a paper somewhat heavier than the blank stock already described, if we intend to coat long strips. Take two sheets of paper of exactly the same width, and, say six feet long, and, with a sponge and warm water, dampen their under surfaces, cause the two to stick together, back to back, smoothing them into contact with the palm of the hand. Place the coating apparatus near the floor and have a box handy to stand upon. This done, take the brass tube and hold it parallel to the top end of the paper, but a few inches below it. Then carefully sink the brass tube beneath the surface of the liquid gelatine with the paper under it. Take hold of the free end of the paper, being careful that it is above the liquid. Stand on the box and draw the whole length of paper slowly and steadily through the liquid gelatine. The object of the metal roller is to keep the paper submerged while in transit through the gelatine. The gelatine will not get between the two sheets of paper, but only cement their edges which, when dry, may be trimmed off and the two strips separated. In coating by this method, the following should be remembered. That the paper should be drawn up perpendicularly with a steady slow motion. The slower the movement the thinner the coating, because the paper then has time to approach the liquid in temperature. On the other hand, haste will cause a thicker deposit for the opposite reason. The objection to a thick coating is that it causes a waste of material in after-manipulations. Too thin a coating is liable to cause the light action in the subsequent printing to act right through the film in the shadow parts of the negative and thus anchor the paper backing, making development difficult if not impossible; for it is always



WHILE THE FLOCK IS GRAZING By FRED R. ARCHER

necessary to have a film of soluble gelatine between the printed face of the tissue and its paper backing. The drawing of the paper through the liqid at an uneven speed will cause a coating of varying thickness; and, when we come to sensitize, we will have a tissue more sensitive in some parts than in others, in consequence of the thick patches absorbing more sensitizer and causing uneven drying.

In order to apply the carbon print to various surfaces for decorative purposes, it will be evident, even to a novice in the process, that the image cannot in all cases be transferred to, and developed upon, its final support. Should we elect to decorate a wooden box, we certainly could not develop with hot water

a carbon image thereon. This forces us to adopt a process called retransfer or double transfer. Double transfer is nothing more than developing the print on a temporary support, from which it is in time transferred to the article we wish to decorate, be it cardboard, paper, wood, leather, glass or any other substance. The worker who is already familiar with single transfer has really very little more to learn. The temporary support may consist of any substance such as zinc, glass, paper or celluloid. Where one wishes a perfectly matt surfaced print, he can go about it in the following way: Take a sheet of ground-glass—opal glass ground on one surface is even better—and rub over it a waxing solution of beeswax, five grains; oil of turpentine, one ounce. If the plate has not been used before, give it two coats of the waxing solution and polish off the wax with a soft rag, leaving an almost imperceptible coating of wax on the ground surface of the glass. Place this glass plate in a tray of cold water, slide the printed tissue into the same tray, and proceed exactly as described in making the single transfer. The image in this case is developed on the glass. When development is complete, a piece of double transfer paper, which is similar to single transfer paper, except that it has a thicker coating of gelatine, is soaked in tepid water and brought into contact with the printed image on the glass; it is squeegeed thereon and placed under moderate weight for a short time; then placed to dry. When dry, it will often detach itself from the glass surface, adhering to the final support in the natural or unreversed position.

If the final support is to be a polished surface, use a smooth glass waxed for the first support in the same way as just described. This is all that is necessary for portrait or landscape work from ordinary or unreversed glass negatives. Double transfer paper can be procured at the dealers with working directions; I do not think it pays to make it for oneself.

Film negatives, the reader may remember, do not need this extra operation; one avoids it by simply printing with the celluloid or back of the negative in contact with the paper.

There is yet another kind of support, which is called flexible. For this purpose thin celluloid is as good as anything. A flexible support is necessary when our picture has to be transferred to a curved surface; the tops of boxes often require its use. Prepare the celluloid with the waxing solution if it has a matt surface; but, where the celluloid is perfectly smooth and clean, I do not use the wax.

If we wish to make a transfer on ivory—and such pictures are often used as a base for coloring miniature portraits—we would proceed in this way: Clean the ivory to remove all grease; make up a five per cent solution of gelatine; place the ivory in it; then take the piece of celluloid bearing the developed picture, which piece of celluloid should be a little larger than the ivory; slide it over the ivory, both being immersed in the gelatine solution; bring the two out together; lightly squeeze them into contact; with a damp sponge remove the superfluous gelatine; and, when dry, strip off the temporary support, and the picture will remain on its final support. If the object to receive the picture cannot be submerged in the gelatine solution, we simply paint the gelatine liberally on that part to be occupied by the picture, place the support bearing the picture on it,

being very careful that no air is imprisoned between them. When this is dry, strip as before.

So far, all the transfers I have spoken of are on light grounds. Supposing we wish to transfer our picture on to a dark ground, say, a dark wood panel, we would proceed in this way: Take some of the five per cent gelatine solution, say, a teaspoonful, and on the glass slab mix with it some Chinese white or zinc white; add to it a little yellow ochre or other suitable color to tone down the rawness of the white; place this dab of colored gelatine in an egg cup standing in warm water and, when again liquefied, use it as a paint. Take the temporary support on which the transfer has been allowed to dry and, with a suitable brush, carefully paint this light ground over the transfer, being very careful to keep the color within bounds. If the color chills too quickly, add a little warm water to it—just a few drops. The idea is to flow on a uniform coating the same thickness all over. It requires a steady hand but really no painting skill. When this ground has set, paint it over with a two per cent solution of alum; let it dry and transfer with the gelatine solution after wetting the surface of the transfer.

All these transferred pictures on wood should, when quite dry, be varnished or polished with the rest of the wood-work. It protects the picture and incorporates it into the article itself. The transfers are exceedingly thin; there is no perceptible edge; the effect of "stuck on" is entirely absent.

The arts reflect each other; the terms which are applied to the arts are borrowed from each other. We speak of the tone of a picture and the color of a piece of music. The sculptor must have a sense of color and music or his work will be cold. Each art may definitely require a special set of faculties to be trained, but these are co-relative and must be brought into harmony for power in any one art. Hence a certain amount of training in different arts develop the art capacities and enables the mind to grasp the elements that are fundamental in all arts.—S. S. Curry.

Zeal ever follows an appearance of truth, and the assured are too apt to be warm; but it is their weak side in argument, zeal being better shown against sin than persons, or their mistakes.—William Penn.

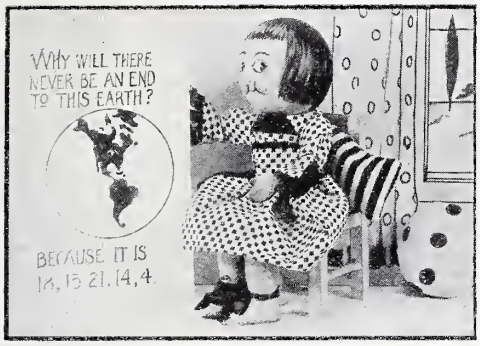
"Thinkouts," A Photographic Production

By Cobb Xavier Shinn

With Illustrations by the Author

The reproductions herewith are presented, through the kindness of the *Chicago Herald and Examiner,* in whose pages they have all appeared, not as being examples of photographic art, but as showing an interesting application of one's knowledge of photography, combined with a little rudimentary skill in drawing and a willingness to give thought to the work. The newspaper mentioned runs an interesting page of reproductions of photographs, each day, and one of them is along the lines shown, the title reading: "Daily Thinkouts for Children", followed by the explanatory text as given with the few shown.

The reader has only to look at them to see that there is no great secret about the making of such pictures, and yet they are quite decidedly off the beaten path. They are, in fact, only another application of the method described in these pages some two years ago. Their use, by a large metropolitan daily, indicates that they have some value, and the check received in payment,



while not taxing the resources of my local bank when it comes to cashing them, is even more convincing.

The moral of this little story, if there is any moral to such an infliction upon a class of readers who are supposed to be seeking for the pictorial, is this: Don't wear out your patience and the stamp cancelling machine at the postoffice in a vain effort to sell pictures of pretty landscapes and the like to the long-suffering editors of the newspapers and magazines; try them with something different. And something different doens't mean something hard to make, as witness these examples shown. I don't, for a moment, suggest that these I am showing herewith be imitated or the particular idea back of them be used; but anybody possessing some little ingenuity ought to be able to devise some application of their photographic skill that is more original, even if not more artistic, than the "usual thing" in the way of camera productions.

Working out some such idea will be found very interesting; the necessary thought involved should not prove a deterrent, and while no salon awards may fall to one's lot, a few extra dollars may come his way. I trust that the reader will, at any rate, find some interest in the few examples shown herewith, not because of the childlike nature of his mental equipment, but by reaon of their presentation of a less common application of photography.

More About Light and Exposure

By L. E. Rea

With Illustrations by the Author

In our article on "Light and Exposure" in the December number of "Camera Craft," we endeavored to show that it is the reflected light that reaches the plate that produces the picture. We will now consider several other phases of light control that contributes materially to the production of good pictures.

In beach and water scenes, distances with high elevations, and open landscapes, we have the direct rays of sunlight falling on our subject and, in addition, the reflected ray from the sky with a probable arc of a hundred and eighty degrees. With these conditions in our favor, we can safely use a much smaller stop than could be used if a downtown city street scene were the contemplated picture. In the first place, the average business building is of the light-absorbing type. Then, to add to our discomfiture, we find the buildings tall and excluding the sky to the extent, let us say, of one hundred and thirty-five degrees, thereby leaving only forty-five degrees for reflected skylight and sunlight. Even if the same light were falling on these tall buildings as is falling on our beach scene, the color of the walls, cornices, window sills, doorways and signs helps to absorb the light that would otherwise be reflected to the camera.

Try the experiment of setting up two dark-covered books on the table in the same relative position as the buildings in a street, with an electric lamp in place of the sun. Then remove these books and note the difference in effect on objects that were between the books.

Then there is the consideration of time of year and hour of day. During the winter months the sunlight is only about one-half the strength that it is in summer. In the early morning and late afternoon the rays of light from the sun must pass through a much greater depth of atmosphere than at mid-day. If the earth's atmosphere is, as scientists estimate, fifty miles in depth, then consider the vast amount of air and proportionate vapor the desired photographic rays must pass through. When at an angle of from forty-five to ninety degrees, the sun's rays are acted upon as if an enormous prism were planted upon the earth's

AN INVITATION TO WIELD THE OAR

surface and the apex of this prism reached to the limit of the atmosphere. The white light, composed of a bundle of various colored rays, in passing through this prism, is broken up into its separate colors, thereby producing the beautifully colored sunsets we are privileged to enjoy. Snapshots under these conditions usually result in dismal failure. Why? Because the ultra-violet or photographic rays have been dispersed to such an extent that it is necessary to confine our efforts to time exposures or use a so-called fast lens.

A BIT OF THE SOUNDING SEA

My readers have, no doubt, observed that snapshots are better for distant views than for near objects. Again, why? Because a greater amount of reflected light enters the lens from a distance than from what is near, as is most familiarly shown in the fact that one instinctively shades his eyes when looking to a distance.

I am sure that there are but few of us so lacking in observation as not to have noticed the peculiar actions of a lady ironing. To test the intensity of its heat, does she not moisten the tips of her fingers and slightly tap the iron a quick, glancing stroke? And then does she not proceed to place the iron upon the cloth, moving it to and fro at the rate of speed she judges exactly proportionate to the heat she has ascertained from her first test. We observe that, in testing the heat of the iron, her movement was so rapid that she did not burn her fingers. We find that a properly timed snapshot does not permit the light to penetrate the sensitive emulsion any more than the heat from the iron did the lady's fingers. A time exposure has its parallel in the process of ironing. The speed of the iron is in proportion to its heat, and the length of a time exposure should be in proportion to the strength of the reflected light. A snapshot saves the delicate gradations of the distance, while a time exposure permits the faint rays of light from the deep shadows and darker objects to impress themselves on the plate.

Another point in the succesful production of good photographs is in the understanding of the shutter speeds and diaphragm markings of your lens. It is quite surprising to find how few photographers, whether amateur or professional, really understand the apparatus with which they work. In our endeavor to explain the lens equipment to you, we will consider that a sensitive plate is like a pan of flour. This flour requires a certain amount of water to turn it into dough. The sensitive photographic plate requires a certain amount of reflected light to make the correct impression on it. In order to save trips to the well, we select a cup of sufficient size so that one trip will suffice. Now, if we consider the diameter of this cup to be f-11 in its clear opening, and one twenty-fifth of a second its depth, we immediately grasp the idea that this combination represents volume. What is the difference between a cup of water to the pan of flour and a cup of light to the photographic plate? If we increase or reduce the diameter of the cup, we increase or reduce the volume of water or light; and, if we increase or reduce the depth of the cup (shutter speed, remembering that one-fiftieth is half of one-twenty-fifth), we also increase or reduce the volume. The best practice is to let the shutter speed remain at one-twenty-fifth, and vary the size of the diaphragm as occasion may require, when making snapshots.

In conclusion, let me say that a little horse sense goes a long way toward success. Get a good exposure meter—there are many on the market—and apply the few rules I have given here, along with the data the meter has to offer, and you are bound to be successful; always remembering, however, that the diaphragm or f- numbers are in inverse ratio to the size of the opening.

Your rusty kettle will continue to boil your water for you if you don't try to mend it. Begin tinkering and there is an end of your kettle.—CARLYLE.

Help Boost Your Locality

By A. S. Dudley

Illustrations by Various Workers

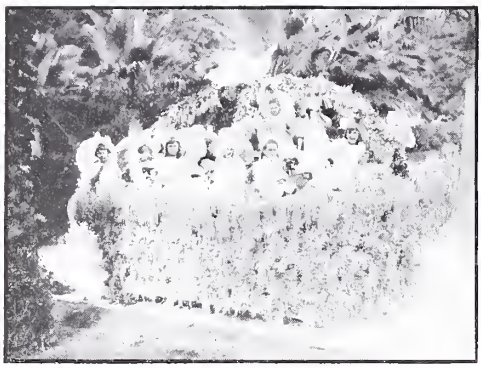
There are times when the professional or amateur photographer may operate in a dual role, with distinct benefit to the community. Probably a very small percentage of amateurs realize that their work may be made to reflect, both pleasantly and educatively, their community and its life to all parts of the world.

Few appreciate how much really valuable work can be done through good pictures. It is estimated that eighty-two per cent of all human knowledge is absorbed through the eye, and that sight strikes deeper than sound. Everyone is familiar with the old saying, "Seeing is believing". So that, if the camera depicts exactly what is in front of the lens, it presents the exact truth to that sense which is most receptive.

Photography today is almost universal. It probably has more amateur devotees than any other art. The fond new mamma keeps a record of baby with her kodak. The student, the school teacher, the picnicker, the hiker, and, in fact, almost every variety of human being is becoming addicted to the camera habit. Quite a large majority of them certainly do more than back away a certain number of feet and click the kodak. They take real pictures, and have

ONLY A BLUFF; BUT IT SHOWS THE SIZE OF A THREE - POUND CALIFORNIA ORANGE

SOME OF THE BIG VISITORS' REGISTERS AT THE LOS ANGELES CHAMBER OF COMMERCE



A COUPLE OF FLOATS IN THE PASADENA ROSE TOURNAMENT, HELD IN JANUARY

a good, common sense conception of composition, as is attested by many amateur photographic exhibits. It is this common sense, or better sort of photography, that states facts of interest, that becomes a community booster. A striking photograph has possibilities of world-wide circulation. It is not unusual for a single picture to be reproduced in scores of publications, even though it is a photo having distinct advertising value for the particular community it reflects.

It would be difficult to find a community anywhere that does not have at least one bright and pretty spot of exceptional distinction or beauty. It may have become so familiar to residents that they fail to realize its pictorial value; but the value is there. Such spots as these, reflected accurately and artistically through the camera, become silent salesmen. They perform the first step necessary in advertising—that of arousing interest or attracting attention. They are more powerful than the most vivid verbal description. They tell at a glance a story that might take thousands of words. They are accepted as the truth, because they visualize a scene. What interests the eye is accepted by the mind; no further doubt exists regarding what is transmitted optically. This cannot be said of what is heard or read.

If the statement is made that a tree trunk is so large that two grown persons cannot span it, the hearer is inclined to be skeptical and think that the statement is exaggerated. If shown a picture of this tree with the adults straining to make their arms meet, it is not only interesting but convincing, and fixes attention.

The power of a picture as an advertiser is demonstrated constantly by commercial organizations throughout the country, which are glad to furnish photos of interesting features of their respective communities. They employ expert advertisers to select the pictures and to supervise and encourage distribution. Some chambers of commerce are highly successful in having photographs of their city and its enterprises published broadcast.

Here are some suggestions made by a patriotic photographer in a Minnesota town, who, apparently, has keen appreciation of the possibilities of the photograph as a community booster:

Snapshot the beauty spots, especially of lake and stream, for water scenes are the prettiest pictures.

Snapshot the good catches of fish and the good bags of game.

A FORTY-ACRE ASTER FIELD IN SOUTHERN CALIFORNIA—GROWN FOR SEED. A GORGEOUS SIGHT IN EARLY WINTER

Snapshot the good herds and flocks, the pure-bred stock, the good crops.

Snapshot every large outdoor gathering of your community and all its organizations—celebrations, picnics, parades.

Snapshot your good roads and their making, new ditches, new land clearing, new industries, new buildings.

Keep sets of such snapshots, make up simple albums of such sets, to show visitors and others.

Give and send such snapshots, singly and in sets, to friends, but especially to those whom you want to interest in your section, to visit, settle or invest.

They will say, "What beautiful scenery! What great fishing and hunting! What rich soil and prosperous people! What a lively, progressive community!"

Thus will you boost by your kodak.

How Metol Was Re-Discovered

By Louis J. Stellman

Among the most important chemical compounds lost to America through the recent war was metol, as every photographer knows. For a time, the stock

held out, increasing in price from the original forty cents per ounce, retail, to almost that amount in dollars. It was announced that Thomas A. Edison had discovered the formula; but his para-amidophenol hydrochloride proved sadly lacking in the the qualities of German metol. A host of others, called substitutes, and several actually new productions, came into the market. Some were original metol greatly diluted with other chemicals; some were rank fakes; but none of them were metol pure and simple.

William J. Van Sicklen, post-graduate of Stanford and professor of chemistry at Rice University, Houston, Texas, finally synthetized this important developer with exactitude, and has gone the Germans one better by making a grade that is chemically pure and non-poisonous. For ten months he worked in the Texas laboratory, secretly and for about eighteen hours a day, to reproduce metol, the importance of which his interest in, and knowledge of, photographic processes brought strongly home to him. He had practically nothing to aid him. The German manufacturers had never patented their metol in the United States, thereby avoiding the necessity of depositing a formula with the Patent Office. Instead, they had patented the "use of metol" and the trademark, which shrewdly served their every purpose.

In 1897, a German chemist named Paul published a hypothetical method of production for metol; but this Van Sicklen found, upon experimenting, to be incorrect. So he entered upon a long and tedious process of molecular analysis, determining the exact atomic structure of metol. After his discovery, he faced the even greater task of proving it to the photographic trade, more or less reconciled to substitutes and thoroughly suspicious of new compounds because of the many almost worthless imitations they had tried. Van Sicklen had to combat this prejudice by argument, demonstration and chemical tests. He was constantly being asked, "How can your prove that your compound is metol? I've already tried a dozen that are said to be, and all of them are short of metol qualities."

While there is no single test for metol which is absolutely conclusive, Van Sicklen cites a double test which can not be gainsaid:

(a) Metol is practically the only developer that dissolves in concentrated hydrochloric acid.

(b) A five per cent solution of mercuric acetate, when added to a dilute solution of metol, will give a purple color after standing for about one minute.

Any substance that stands either of these tests is almost certain to be metol. If it stands them both, the proof is indisputable, so far as modern chemical knowledge goes. Of course, the test which interests photographers more practically than any other is the keeping quality of a developer. Genuine metol will oxidize much slower than its substitutes of equal developing speed. Van Sicklen claims, and is prepared to prove, that his metol lasts from fifty to three hundred per cent longer than any other so-called metol, substitute or imitation.

Van Sicklen has rid metol of its greatest handicap, the poisonous quality, which he found to be a free base closely akin to carbolic acid. This free base has been removed from his chemically pure grade, which is colorless and more lasting than the commercial grade.

The truths of Nature are one eternal change, one infinite variety.—RUSKIN.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

Vol. XXVII San Francisco, California, January, 1920 No. 1

We Thank You

We realize quite fully that, while in the very nature of things, it is impossible for us to get that degree of what may be called the personal contact that would be possible with a smaller number, there is still, between our readers and ourselves, a somewhat different, a somewhat more intimate, relationship, a somewhat more pronounced feeling of give and take, than exists in other fields of endeavor. We, ourselves, find it impossible to look upon our subscribers merely as customers who have made a purchase of the goods, the magazine, that we find so much of interest in producing, in producing in such a form that it will, according to our best belief, best suit their wants. We feel that each reader is entitled to our best efforts in his behalf; we are only too glad to be of any assistance that we can; and we find no small part of the joy and pleasure that our work affords is directly proportional to the amount of such help that we can find time and opportunity for giving. On the other hand, it must be remembered that we are constantly made aware of the fact that our readers are also most kindly inclined, our daily mail and the office door bearing evidence that cannot be ignored. To thank each one either by letter or by word of mouth is of course out of the question, the list is too long, supposing even that a complete list were a possibility. And were it possible, would these good friends feel that their kindness were any the more appreciated simply because the editor had taken of his time, which is none too plentiful, to write and tell them so? We prefer to believe otherwise; in fact, we feel that our so doing would, in the majority of cases, be more of an embarrassment, be more undesirable than the implied lack of time and opportunity that our neglect to attempt the task might indicate.

We can, however, thank our readers, as a body, for the generous support they have given CAMERA CRAFT in the past; and, as the renewals and new subscriptions indicate, are ready to extend to us in the months to come. And we shall certainly try to make the magazine merit this handsome support. You are, all of you, no doubt, renewing your subscriptions or becoming one of our family of readers, primarily because the magazine is, to you individually, worth all of the price that is charged, and that alone demands our appreciation. And where, as seems so generally the case, the kindness is extended still further, we can only offer the assurance that our full appreciation is not withheld, even though a personal acknowledgment, such as we would like to give, is not forthcoming. Time and physical endurance do not permit. We know that we enjoy this support, this extension of the kindly spirit of our readers, support that is given in full measure and with a disinterestedness that makes it all the more gratifying. A few names and addresses, a kindly word spoken for the magazine, and a new subscriber results. This new subscriber is but the starting of a chain; a number of these chains means much in the way of circulation, and circulation, in turn,

means everything to the success of a publication. Circulation such as CAMERA CRAFT enjoys means satisfied advertisers, and their business, in turn, means that we can continue the present low price, despite the advance in cost of production. Invariably our new advertisers are surprised at the number of inquiries that their announcements in our pages bring forth, only later to be again most agreeably surprised at the amount of business that results from these inquiries. As a recent new advertiser wrote us but a few days ago, one learns to consider almost every inquiry received from our readers as a good customer added to the list; catalogues, printed matter, and even personal letters being good investments instead of a waste, such as results from using a mailing list, or even in replying to direct inquiries from a less satisfactory source. And right here is where we might introduce a few words to explain how anxious the advertiser is to get in touch with our readers. The catalogue he sends out are informative, his printed matter is instructive, and he is always ready to answer your queries as to his products and their application to the best of his ability. If our readers could only realize this as fully as they should, the situation would be even more gratifying to all concerned. But we did not start out to preach to you, simply to extend our thanks; and, in doing so, allow us to do the same to our good friends, the advertisers. We know that they are quite strongly inclined to bestow their patronage where the returns are so gratifying, but our thanks are due them just the same. They, alike with our readers, make the magazine and a continuation of the present price, which we hope to maintain, a possibility. We thank you.

The Seventh Pittsburgh Salon

We cannot say too much in behalf of the Annual Pittsburgh Salon of Pictorial Photography, of what it means to the pictorial photographers of the country, and in praise of the untiring work and energy that is given by those whole-souled and enthusiastic workers responsible for its success.

Next month will be too late to urge upon you the importance of preparing and submitting of your best, as the closing date is February fifth, a point that must be borne in mind. The exhibition will be held from March third to thirty-first, inclusive, but that does not mean that the closing date for entries can be overlooked. As we have before stated: All prints will be passed upon by an impartial and thoroughly competent committee of selection. Prints possessing the highest merits in artistic expression and execution will be hung. As has been the rule heretofore, no picture will be eligible that has been exhibited before in the United States. Entry forms, containing full information and conditions of the Salon, may be obtained by addressing Charles K. Archer, Secretary, 1412 Carnegie Building, Pittsburgh, Pennsylvania. Last day of entry, Tuesday, February tenth, 1920.

And we can, perhaps, do no better than to quote further from our previous announcement as follows: The above is the bare wording of the preliminary announcement, an announcement that means much to many of our readers and perhaps but little to many others, depending upon their zeal or zest in the matter of pictorial photography.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D.

The Carbro Printing Process

The process of making carbon prints from bromides is not new, as it was invented fourteen years ago by Thomas Manly, and has been familiar as the ozobrome process. The carbro process, which is now described, as will be observed, follows on the general lines of ozobrome, but differs from it in the fact of the tissue being prepared by treatment in one single bath; also ordinary carbon tissue is employed in the carbro process, in which it has been possible to standardize the times of treatment for tissues of different color. Since the publication of an earlier article outlining the carbro process, the writer has received so much encouragement from those who have given carbro a trial that it was decided to continue experimenting in the hope of making the working so mechanical as to bring it within the reach of the most inexperienced worker. This has now been accomplished, and altogether seventeen colors of Autotype carbon tissue have been successfully adapted to the process.

Early experiments soon showed quite a variation in the time of immersion required for different colors, with dark blue at the short end, only three and a quarter minutes, ranging to engraving black, with a lengthy immersion of ten minutes before detail was obtained in the high-lights. It was found possible to work the whole of the available thirty colors in a single working bath, but the time of immersion of some of the colors was so unduly prolonged, as in the case of engraving black, that a second working bath was introduced for the purpose of reducing the time to something more convenient. With these two working baths the whole of the colors appeared to drop into two series, and the table given is probably the most convenient method that it will be possible to introduce.

A comparison between the two working baths will show that while the proportion of B and C differ, the quantities of A solution and water remain constant. This last point is most important, and the worker is advised to adhere to the figures as closely as possible, obtaining control for pictorial results by varying the proportions of B and C solutions only.

Temperature, too, has a considerable influence on the chemicals used, and the ideal temperature for the working baths is between fifty-five and sixty-five degrees Fahrenheit, this being the normal temperature of a living-room in England both winter and summer; and, as the process requires no dark-room the whole of the work may be carried out in cold weather beside the kitchen fire.

The keeping qualities of the stock solutions are excellent, and the working bath, until used, and thereby contaminated with organic matter from the carbon tissue, keeps for months. This is a useful point, as it permits the mixing of the working bath a day or two before required, and, by keeping it in a living-room, the mixed solution will take the temperature of that room and be ready for use at any time.

For the information of those who are unacquainted with the carbro process, the first part of this article gives full working instructions, while the latter part will contain information which may prove useful should any difficulties arise.

Briefly, a piece of commercial carbon tissue is sensitized, and while wet brought into contact with a bromide print—this bromide acting as a negative. These are allowed to remain in contact for about fifteen minutes, then separated, and the carbon tissue squeegeed to a piece of transfer paper. On this transfer paper the picture is developed, and the final result is a carbon print from the bromide. The picture is not, as in the single transfer of the carbon process, reversed from right to left.

The following are the stock articles required: A good bromide print; carbon tissue;

single transfer paper; squeegee; squeegee board, and suitable dishes.

A flat squeegee is best, and a useful length for all prints up to 12x15 is eight inches. The dishes should be porcelain or enamel; papier-mache is too difficult to clean, and thorough cleanliness is essential. It will be seen from the above that there is no great outlay for the initial work, and neither will the future require any additional expense.

The sensitizing baths are made up from the following stock solutions:

A: Bichromate of potash.....400 grains
Bromide of potash.....175 grains
Ferricyanide of potash...175 grains
Water ..... 20 ounces

B: Chrome alum .....300 grains
Bisulphate of potash..... 45 grains
Water ..... 20 ounces

C: Bisulphate of potash..... 45 grains
Water .....20 ounces

All the above appear to keep well if stored in a cool, dark place.

From the stock solutions make up the following sensitizing bath:

Solution A .....1¾ ounces
Solution B .....2½ drams
Solution C .....100 minims
Water ..... 7 ounces

For convenience, this may be called *a a* bath.

This is a most useful quantity for half-plate; for whole-plate use fifty per cent more, keeping the same proportions all through, and for 10x12 double the quantities.

First place the bromide print in cold water and allow it to become thoroughly soaked; now take a piece of carbon tissue, cut about half an inch larger than the bromide from which the carbro is to be made, and immerse face downwards for a definite time, according to time and color table *a a* given at the end of this article. About a minute before the end of the time of immersion of the tissue remove the bromide print from the water and lay it face upwards on the squeegee board. At the expiration of the exact time, withdraw the carbon tissue from the sensitizing bath, and, after allowing it to drain for a moment, lay it face downwards on the bromide and squeegee into contact. Now mop off any superfluous moisture from the back of the tissue and cover with a piece of paper, or preferably waterproof cloth. Place a book over this to prevent the tissue from curling, and thereby losing contact, and leave them in this position for from twelve to twenty minutes, the exact time is not a material point if kept within those limits.

A detail which requires emphasis is that from the moment of contact of tissue and bromide the sensitizing action begins; it therefore follows that once the two have touched there must be no attempt to adjust the carbon tissue if it has been laid down at the wrong angle, as such a course would inevitably result in a blurred or double image. Should any slipping occur, it is far better to squeegee and make the most of the resulting picture, as under no circumstances may the tissue be moved.

Towards the end of the time of contact of bromide and tissue (twelve to twenty minutes) take a piece of transfer paper cut slightly larger than the carbon tissue, and soak this in cold water for about half a minute if of the thin variety, and about a minute for the thicker papers. Complete wetting is necessary, but over-soaking has a tendency to lead to frilling and other troubles during development.

After wetting the piece of transfer paper, hold it up to drain for a moment, then lay it face upwards on the squeegee board. Now take the carbon tissue and bromide, still in contact, and by raising one corner of the tissue steadily pull the two apart; leave the bromide for the present, place the carbon tissue face downwards on the transfer paper, and squeegee the two into contact. Remove them from the board, place them between blotting paper with a book over them to prevent curling, and allow to remain there from twenty minutes to one hour, a couple of hours will do no harm. Go back to the bromide print, now bleached to a pale yellow, and place this in a dish of cold water for washing and redevelopment.

It is advisable to change the wash water during the first few minutes of washing, as the greater part of the sensitizing bath, transferred from the carbon tissue to the bromide, washes out very quickly. Obviously, this water soon becomes a solution sufficiently strong to have some material effect on the bromide print. After changing the water the print may be ignored until the process is finished.

The development of a carbro print is a

far simpler matter than the development of bromides, no chemicals being required. After sufficient time has been allowed for the pigment of the tissue to adhere to the transfer paper, tissue and transfer paper are placed in a dish of warm water. Start with a temperature of about ninety-five degrees, the hand being sufficient guide. Keep the two papers, still adhering, well covered by the warm water, and wait until the pigment commences to ooze round the edges of the carbon tissue. This usually takes a minute or two, and if at the end of that time the oozing is not very apparent, a little more hot water may be added, great care being taken that the temperature is evenly distributed. As soon as the oozing shows all around the edges, carefully lift one corner of the carbon tissue, and, keeping the transfer paper as much as possible under water, steadily strip the two apart. The transfer paper will now be seen to be covered with a thick coat of pigment, a smaller quantity remaining on the carbon backing. This piece of backing has now completed its work and may be thrown away.

Turn the transfer face downwards in the water and proceed with the development by holding one edge and gently moving the print over the surface of the water, great care being taken not to touch the bottom of the dish. A better plan, if the dish is large enough, is to gently splash the face of the pigmented transfer paper, and as the picture begins to reveal itself the splashing may be local for reducing any particularly dense part at the desire of the worker.

Development is complete when it becomes obvious that no more pigment will wash away, and the picture is laid face downwards in cold water to clear it from any loose pigment on its surface.

It will now be noticed that where the carbon tissue has been in contact with the transfer paper the latter is marked with a bichromate stain, to remove which the print is placed in a bath consisting of a three per cent solution of alum, and allowed to remain until the stain has disappeared. This may be done immediately following development, or the print may be dried and alumned the following day. The alum bath may be used repeatedly until its failure to remove the stain shows that it is exhausted. Should the solution become very dirty it merely requires straining through a piece of old cotton or muslin.

This completes the process, and the bromide, after well washing; twenty minutes in several changes is all that is needed, may now be redeveloped, well washed, and is ready for further carbro prints, no fixing being required.

It is most important that the redevelopment of the bromide print be very thorough, and the prints are best left face downwards in the developer for at least fifteen minutes. If this redevelopment is not complete it will be found that all succeeding carbros will lack detail in the high-lights, and once the high-lights have suffered from this insufficient redevelopment there appears to be no means of retaining them in carbro, except by slightly increasing the proportion of B solution in the sensitizing bath.

Both for the original development of the bromide and also for redevelopment, M.-Q., Azol and Amidol all give excellent results, the writer's preference being for the last mentioned. For redevelopment, which, by the way, requires no dark-room and no fixing, it is better to omit bromide of potash from the developer.

In making first attempts with the carbro process the worker is advised to try a preliminary test, using one hundred minims less of C solution than the given formula, and, with two similar small bromide prints, give one piece of tissue an immersion of fifteen seconds less, and one an immersion of fifteen seconds more than the time given for the color which is being worked. The transfer paper may be marked on the back for future reference, with the formula used and the time of immersion. Example: (A.50, B.9, C.3—4¾ min). This would form a permanent guide for future reference, and give the worker a clear idea of the effect of varying the time.

It is interesting to note here that the time of immersion may be well compared with the time of exposure of a bromide print;—under-immersion (exposure) gives increased contrast, over-immersion (exposure) gives general flatness with high-lights veiled. Over-immersion may be remedied by using hotter water for development; under-immersion has no remedy. If in doubt give the tissue fifteen seconds more immersion than the standard time.

Excess of B solution produces a general clogging, with a heavy deposit of pigment; excess of C solution slows the action of the bath, and longer immersion is needed to obtain definition in the high-lights. At the same time it holds back the shadows and general flatness results. This last detail is very useful for a harsh bromide, as by the addition of about one hundred minims of C, any degree of softness may be obtained, but don't forget to prolong the immersion from half to one minute.

The treatment of the original bromide print is an important factor in the final results obtained, and correct exposure and development are very essential. Over-exposure and under-development of the original bromide print produce great flatness, and the richness of the shadows is entirely lost in the final carbro print. A weak bromide gives a weak carbro, and for a weak negative the enlargement is best made on gaslight paper.

There are occasions when slight over-exposure of the bromide may be turned to useful account, as in the case of bald-headed skies. Slight over-exposure in bromide gives the appearance of fogging, but the deposit of pigment in the sky of a carbro print gives a suggestion of color. Wherever there is reduced silver in the bromide there should be a deposit of pigment in the carbro print.

The figures of the time and color table have been worked out for all the principal British makes of bromide papers, platino matt being the most useful. Some makes which appeared to contain very little silver required quite a lengthy immersion, one paper taking eight and a half minutes for sepia. There is no doubt that any paper will give a good carbro, but such a prolonged immersion as eight and a half minutes might be very baffling for a beginner. Some bromide prints made over eight years ago gave excellent results.

Gaslight papers, on the other hand, need only three-quarters of the time given for bromides with the same proportion for all colors, and the exact proportion of one maker's gaslight to their bromide platino matt is as eleven is to sixteen. Gaslight paper gives carbro prints fully equal to those obtained by bromide, and is therefore a valuable asset when dealing with a flat negative.

Although the tables are given as working at a temperature between fifty-five and sixty-five degrees, it is advisable to keep as near the sixty degrees as possible. At above seventy, trouble develops on account of the softening of the tissue necessitating great care to prevent slipping when squeegeeing to the bromide. Also there is danger of crushing the high-lights when squeegeeing to the transfer paper. Below fifty-five degrees the activity of the chemicals varies in different proportions, upsetting the balance of the working bath. Obviously, too low a temperature is best avoided; it is an easy matter to raise the temperature by putting the bottle of working bath in warm water before pouring into the dish.

A convenient method of working a number of carbro prints is to take them in lots of four. Put in the first tissue, then immerse the other three at regular intervals of two and a half minutes, and by the time the last one is out the first will be ready for the transfer paper. Quarter-plate prints may be worked, if all of the same color, with four prints on one piece of tissue. Lay them in a square on the squeegee board, with a space of about one-quarter of an inch between them, and cut the carbon tissue about 7½x 9½; this gives a comfortable margin for squeegeeing. For all work it is best to cut the tissue about three-quarters of an inch larger than the bromide to allow for error when placing the two in contact.

For economy and convenience in working an excellent plan is to classify the bromide prints according to the desired color, then, having mixed one working bath, continue with the colors belonging to that bath until the mixed solution is exhausted. It is worth noting that filtering after use will increase the keeping qualities of the working bath, but the bath is very cheap and there is no need to use stale solutions.

Carbro has many advantages over bromide printing: It is permanent pigment; and you know before you commence working what the final color will be. This cannot be said of bromide toning. It is simpler than bromide making, and you have a choice of seventeen colors, with about ten different surfaces of paper support. In cost, carbro has a fractional advantage.

Beware of air bubbles on the tissue during immersion. This is best avoided by lightly pressing the paper to the bottom of the dish and stroking the back of the tissue during

the first minute of immersion. Accurate measurement of all solutions is imperative. Fifteen minims more or less of B or C solution might make a difference of half a minute in the sensitizing bath. Store all solutions in the dark—light has a very powerful action on bichromate, and also on ferricyanide. In the dark these two are fairly stable. Should the working bath suddenly give a very harsh print it is an indication that it is exhausted.

Oxalic acid may be substituted for bisulphate of potash, but its keeping qualities are not good, especially in the mixed bath, and its use is not recommended. Bisulphate of potash as called for must not be confused with the bisulphite salt.

The process is suitable for transparencies, and prints on wood and silk, the method of preparing the support being the same as that given for the carbon process in the Autotype Company's booklet. For transparencies, give a rather longer immersion than for paper suport, half a minute being sufficient for most of the colors.

And just one "don't"; don't attempt modification of the working bath until you have become acquainted with the process.

The table for use, at a temperature of fifty-five to sixty-five degrees and for *a a* working bath is:

Color of Tissue	Time of Immersion
Dark Blue	3¼ minutes
Terra Cotta	3½ minutes
Standard Brown	4¼ minutes
Sepia	5½ minutes
Sea Green	3¼ minutes
Vandyck Brown	5½ minutes
Bottle Green	4 minutes
Italian Green	4¼ minutes

For contrast omit C and shorten time by one-half minute.

For *b b* working bath, made up as follows: A, one and three-quarters ounces; B, five drams; C, 5 drams; water, seven ounces.

Warm Sepia	4½ minutes
Red Chalk	5½ minutes
Brown Black	5¼ minutes
Rembrandt Sepia	4½ minutes
Cool Brown Mezzotint	4¾ minutes
Warm Black	4½ minutes
Ivory Black	5 minutes
Engraving Black	6 minutes
Gray Green	4½ minutes

For contrast, use one hundred minims less of C and shorten time by one-half minute.

The above figures are applicable to the papers used and others will no doubt give very similar results.—H. F. Farmer in *British Journal of Photography.*

Sulphide Toning Modifications

In the *Trade Notes* issued from time to time by Rajar, Limited, there is nearly always something of practical value to the amateur photographer. This month they remind us that colder tones than those given by the straightforward method of bleaching and sulphiding can be obtained if the gaslight or bromide prints are first placed in a sulphide solution before bleaching. Thus the fixed and washed prints may be immersed for five minutes in one part of liquid ammonium sulphide diluted with forty parts of water, or in an ounce of sodium sulphide dissolved in the same quantity. A portion of the silver will be converted into sulphide in this way, and when the prints are well washed and then placed in the bleaching solution it will be found that the image will not bleach out so completely as usual. After this bath, followed by sulphiding and washing, a cooler tone results. Messrs. Rajar point out that they prefer ammonium sulphide to sodium sulphide, as it is more stable, and is not liable to erratic action. Another modification they mention as giving a good variety of tones is that in which the print after bleaching in the usual ferricyanide-bromide solution is well washed and is then placed for a longer or shorter time in a weak developer, such as amidol or m-q diluted with about five times its bulk of water. In this the black image gradually regains its strength, and at any point desired the redeveloping may be stopped by washing, and the washed and partly redeveloped print placed in the usual sulphide solution and then washed. In this way we get an image partly of silver (black) and partly of silver-sulphide (brown): the further redevelopment is carried the more will the final color tend towards a black.—*Amateur Photographer.*

Sulphide Toning With Polysulphide

In the current issue of the *Bulletin of the French Photographic Society,* M. L. P. Clerc has a note on the process of sepia toning with polysulphide, originated some years ago by M. Desalme, a translation of whose communication appeared at the time in the

method consisted in making a solution of polysulphide by boiling sulphur with strong solution of ordinary sodium sulphide, or by mixing a strong solution of sodium sulphide with hydrogen peroxide. The yellow solution produced in each case is largely diluted with water to form the toning bath, in which prints gradually tone from a black to a warm sepia ground in about thirty minutes.

M. Clerc has found that the process does not work with the same readiness in the case of all papers, and that certain brands refuse to tone at all. The simplicity and cheapness of the process and the excellent results obtained under suitable conditions have therefore prompted him to make tests of a number of prints which showed no toning action after an hour's immersion in the bath with the object of discovering the cause of their failure to tone.

In order to test the condition of the image of a print which had thus remained untoned in the polysulphide bath, a print was well washed and treated with Farmer's reducer. The image was slightly reduced at the same time, becoming, almost instantaneously, of sepia tone. It thus seemed that the particles of reduced silver were attacked superficially in the hypo-ferricyanide bath, a layer of black metallic silver being removed from the nucleus of brown silver sulphide, and disclosing the toning already partly completed. In these conditions it appeared probable that toning would take place by prolonging the time of immersion of the prints in the polysulphide bath for a sufficient time.

The strength of the solution appeared to have no influence either on the time of toning or the color of the prints. The only practical means for increasing the speed of toning thus appeared to be the use of a higher temperature. Prints which had been toned for one hour without having exhibited any change were hardened, with other untoned prints, in weak solution of formaline, and then immersed in solutions of polysulphide at various temperatures. Toning was found to take place more rapidly according to the temperature of the bath. At a temperature of about one hundred and twenty degrees Fahrenheit toning was complete in ten minutes, but the tone was no longer sepia brown, as when toning in the cold, but purplish brown, resembling the tone obtained by hot hypo-alum.

Other prints which refused to tone in the cold within a reasonable time were kept in the polysulphide solution for a longer period than two hours. With two hours' immersion at a temperature of about sixty degrees Fahrenheit the prints became warm black; after three hours some of them toned to a very pleasant purplish brown, whilst others took six hours to tone to sepia brown.

The same process of toning is applicable to glass transparencies, the toned images being much more transparent than before toning. In testing the action of the bath on transparencies made on different brands of plate, the same differences are met with as among papers. Some transparencies tone rapidly whilst others are difficult to tone, and show an alteration of color only after several hours' treatment. Still others obstinately refuse to tone even after very prolonged immersion in a heated bath.

The differences here noted by M. Clerc conform fairly close to those which are found in the case of the toning of bromide papers with liver of sulphur. It is no doubt common knowledge that some bromide papers tone very readily by this method and yield excellent results, whilst prints on other papers seem almost untonable in a "liver" bath, although both descriptions of paper will tone with equal readiness both by the bleach and sulphide method and by hypo-alum.—*British Journal of Photography.*

Radiographic Stereoscopy

A note in the *Bulletin of the French Society of Photography* states that H. Beclere calls attention to the difficulty of correctly placing the stereoscopic details in these radiographs, by reason of the skin surface not coming into the field of stereoscopic vision, and explains that a remedy can be found in lightly rubbing over the skin with vaseline, and then rubbing in carbonate or subnitrate of bismuth. The powder fills in the smallest details of the superfices and gives a foreground to the bony parts without in the least degree veiling them. [Note: The proposal seems eminently practicable, and could be utilized in studying cutaneous affections. I have tested it within the last few days and obtained most beautiful results, but not by the exact technique mentioned above. I propose to treat of the whole question in a subsequent issue.—H. D'A. P.]

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Easily Available Subjects

There was an amateur in to see me the other day and of course he had the usual collection of prints in his inside coat pocket; but in this particular case the pictures were a little different from the ordinary run. They were all made right on the streets of his home town, all made on early Sunday mornings, and all of them made with the most simple apparatus; and yet, almost any one of them would be worth submitting to a salon jury. I tried to get the gentleman to promise he would write me an article telling how they were made and showing some of them as illustrations, but he claimed there was nothing to tell and he would not know how to tell it if there was. And besides, as he explained, he got the idea out of an old copy of CAMERA CRAFT; in fact out of this very department. And as he proved that the whole thing was explained in one little paragraph, it did not seem quite consistent for me to urge him further to write an article on the subject. As originally printed, the paragraph describes the procedure of another amateur, a correspondent, not a visitor. This other worker, appreciating the good quality of an early morning light, starts for his office a little earlier than usual and gives himself time to pick out a corner where the lighting, the vista beyond, and the composition of the foreground makes a good setting for a genre picture. Then, the following Sunday morning he proceeds to the selected spot, a street corner, sets up his camera in the proper position to include the view, and awaits suitable subjects. Having two of his friends along they are posed shaking hands, and "I met Smith this morning," results. Then a man on his way to work approached and one of our amateur's companions stopped him at the right point and asked to be directed to a certain place. "Three blocks down and turn to the right," was the title carried out. A newsboy, alike unconscious that he was being photographed, helped to make "Morning Paper, Sir?" The next subject, a milkman with a can in his hand, was asked to pose with an upward look of inquiry on his face, and "I wonder if that is the right house," was at once decided upon as the title. A fairly large stop and a lens of not too short focus, combined with the morning lighting, gave this worker some fine results as a reward for his trouble; and, from our description of his method the visitor of a few days ago obtained his suggestion. Possibly a few other of our readers can do the same and for that reason the idea is again put forward here.

A Broken Ground-Glass

One of our local view men came in the other day, just back from a trip into the High Sierras. It seems that about the time he got well to work, his camera took a tumble with the result that the focusing glass was badly broken, the largest piece being hardly more than a fragment. Just what to do was the question. He had heard of exposing and fixing a plate, but he had no fixing bath with him. Grinding two plates together would be all right if the requisite emery powder had been obtainable. He even contemplated the use of tissue paper, but none was available. Thinking over the tissue paper he had determined upon fitting it by cutting a cardboard frame to hold it in place, and this in turn suggested the plan he actually carried out. Without much trouble he located a piece of cardboard of the same thickness as his broken gound-glass, cut it to the desired size and then cut a hole, about an inch in diameter, in the center and in each of the four corners. Over these holes he fastened bits of the broken ground-glass, using some adhesive tape that he always carried with him. These pieces were put on what was to be the inner side of the cardboard, their ground surface facing out; the cardboard being the same thickness as the ground-glass this brought the focusing

surface, although reversed, in the same position as before. Of course this practically opaque focusing screen did not answer as well as the original one when it came to composing the picture, but as a direct vision finder was also used, this did not matter. When he wished to focus upon some object that did not come directly opposite one of these glass-covered openings, the camera had to be turned about a little until it did, but that was a very small difficulty as, once the focus was secured, the camera could be returned to the desired position before the exposure was made. The result was that our friends went right ahead and made over a hundred very fine 6½x8½ negatives without the necessity of a three days trip back to a place where such things as ground-glass, fixing baths and the like could be obtained.

Sand Grain Borders

About fifteen years ago I described, in this department, how an amateur friend made some pleasing borders by means of masking off the margins while printing the negative, and then, with the piece cut from the mask covering the printed portion, giving a short exposure to the border portion after first sprinkling it with sand by means of a salt shaker. Last week I had the pleasure of seeing some very fine border effects produced in exactly this manner; only this time the work was that of a professional. In addition to protecting the printed portion; which happened to be a head in an oval, he had also protected a small panel below and to the right of the portrait and in this protected part, this white panel in the tinted border, he had placed his name and the year. The effect was pleasing, novel, and quite artistic; in fact, in some of the examples, the sand had been so distributed as to produce somewhat of a clouded or graduated effect. I am only sorry that I have none of the pictures to reproduce in connection with this description. It is obvious, of course, that the printing of the sand border must be done with the paper, carrying its protecting cut-out over the print, placed beneath a sheet of glass with the exposing light coming from above. It might be mentioned that the effect is just the reverse of "spatter" work, the dots being white on a ground that is more or less dark according to the exposure given. There is, however, no reason why one could not produce border negatives that would print dark spots on a white ground by simply sanding an unexposed plate, giving it a flash exposure and then developing and fixing it.

Work For Winter Evenings

Almost every home provides old books containing some very fine steel engravings or other like illustrations, pictures that are of value and pictures that would be appreciated by one's friends if nicely reproduced in slightly enlarged form. Copying these is not at all difficult and the results that can be achieved have all the charm of artistic productions such as the originals really are. Even the later-day half-tone can be reproduced to look exactly like a photograph if one will but make the copy negative fairly small, using a fast plate and not developing too hard, so as to eliminate the dot of the screen. One amateur of our acquaintance dug up an old copy of the history of his section of the state, a book containing engraved portraits of the pioneer settlers. Numbering among his friends and acquaintances not a few of the descendants of these early citizens, he copied and enlarged the portraits and presented them to those interested, his kindness being appreciated so much more than he had expected. Some old bound copies of *The Art Journal* that one of these friends placed at his disposal gave him negatives of engraved reproductions of a number of old masterpieces, and these made beautiful prints, prints that proved well worth framing. Copying black and white subjects of this kind is not only much easier but much more satisfactory than trying to reproduce paintings, and the prints made are just as pleasing and satisfactory.

A Yellow Light For Illumination

The worker who uses a white light in his dark-room as a source of illumination when the ruby light is not sufficient and when the latter is not for the moment necessary, knows that on switching it off and turning again to the ruby light it is some minutes before the effect wears off and he can see as he should. This is inconvenient, and the glare, when it is turned on, can hardly avoid being somewhat of a strain upon the eyes. A much better plan is to use a bright yellow light as the alternative. Doing this one will find the eye-strain much less and the time required to again become used to the ruby light much reduced.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

Notice to I. P. A. Members

Shortly after the first of the year, A. E. Davies, 1327 Grove Street, Berkeley, California, I. P. A. Secretary for California, will make up, for circulation among its contributors, an album of prints made by members.

Not alone those members in California, but any located west of the Rocky Mountains who would like to see this album, are invited to send prints to be included therein. Send any number of prints desired and any size up to 8x10. Select some of your pictures that you are proud of, pack and address carefully, and send. Mr. Davies will do the mounting and route the album to you just as soon as enough prints are received to make a good showing. If you are interested in photographic work and appreciate the helpful hints and suggestions to be derived from seeing the work of others along the same line, do not delay.

Officers of the I. P. A.

F. B. Hinman, President, Evergreen, Jefferson County, Colo.

J. H. Winchell, Chief Album Director, R. F. D., No. 2, Painesville, Ohio.

Fayette J. Clute, General Secretary, 413-415 Claus Spreckels Building, San Francisco.

John Bieseman, Director Post Card Division, Hemlock, Ohio.

James B. Warner, Director Stereoscopic Division, 413-415 Claus Spreckels Building, San Francisco.

A. E. Davies, Director Western Lantern Slide Division, 1327 Grove St., Berkeley, Cal.

Arthur H. Farrow, Director Eastern Lantern Slide Division, 51 Richelieu Terrace, Newark, N. J.

NEW MEMBERS

4684—H. G. Roberts, Custom House, Changsha, China.
Quarter plate (3¼x4½), on bromide paper of Chinese city, country and river scenes, Chinese temples; for good general work. Class 1. (Members will kindly see that proper postage is used.)

4685—Mrs. Minnie Bennett, Butler, Mo.
3¼x4¼, 3½ and 12-inch panoramas on developing paper, of a little of everything with some fine views of the coast; for anything of interest. Class 1.

4686—Roy A. Feathers, Box 125, Truckee, Cal.
3¼x5½, on developing paper of snow scenes, lakes, woods and mountain views; for anything interesting or curious, landscapes and marines. I desire to exchange only post cards. Class 2.

4687—E. Cedric Marshall, 70 Goddard Ave., Hull, England.
3¼x4¼, 4x5 and 4¼x6½, on bromide and papers of various surfaces, of child studies, river and landscapes, bathing snapshots and caravan holiday scenes; for beach snapshots, girls' head studies, native life and so forth. Class 1.

4688—Freeman S. Spears, Ashland, Ill.
3¼x4¼, on any paper. Desires to exchange only prints. Class 2.

4689—J. H. Eisenberg, 394 Vermont St., Brooklyn, N. Y.
Scenes of New York and all points of interest, noted buildings, etc. Desires to exchange anything in prints. Class 2.

4690—F. M. Yates, 4423 Calumet Ave., Chicago, Ill.
Postal cards, various papers, portraits, landscapes, etc. Desires to exchange all kinds of portraits, landscapes, interesting or instructive scenes. Class 1.

4691—Paul Rosencrans, 75 E. Pine St., Atlanta, Ga.
Class 3.

4692—Benjamin Beauchamp, Castle Blayney, County Monaghan, Ireland.
4¾x6½, printing-out and bromide papers; has views of Castle Blayney and district, to exchange for photographs of San Francisco, or any American cities or lakes. Class 1.

4693—O. B. Humphrey, 57 State St., Bangor, Me.
2¼x3¼ up to 8x10, various papers. Desires to exchange figure studies, landscapes and portrait studies for American and foreign figure studies, landscapes and portraits. Class 1.

4694—Sgt. Ralph Curry, Q. M. C., Fort Brown, Brownsville, Tex.
Post card and 2¼x3¼. Desires to exchange Mexican border, nature and historical for general prints of interest. Class 1.

4695—Dr. Louis A. Braafiadt, Shantung Christian University, Tsinan, Shantung, China.
Class 3.

4098—Chester W. Whittemore, Box A, Lompoc, Cal.
1⅝x2½, 3¼x5½, gaslight paper, general subjects. Desires to exchange subjects of general interest, preferably with Eastern and foreign exchange. Class 1.

RENEWALS

3254—Vernon W. Hutchins, 39 Academy Sq., Laconia, N. H.
Class 2.

4425—Geo. W. Frey, La Honda, San Mateo Co., Cal.

4428—J. B. Gale, Lynden, Wash.
Class 3.

4431—Wm. C. Settgas, 526 Flatbush Ave., Brooklyn, N. Y.
Class 2.

4447—G. W. Grant, 317 E. 14th St., Oakland, Cal.

4458—R. M. Hart, care S. Kind, 66 Center Sq., Easton, Pa.
Class 2.

4581—George W. Greene, 745 Milwaukee Rd., Beloit, Wis.

4613—J. E. Dow, R. F. D. No. 2, Big Sandy, Tex.
Class 2.

CLUB NEWS AND NOTES

Club Secretaries and others will oblige by sending us reports for this Department

The Stereoscopic Society

The United States branch of The Stereoscopic Society of England, has been organized with W. S. Cotton, 5021 Thirty-third Avenue S. E., Portland, Oregon, as local secretary. The parent society was organized in England, twenty-six years ago, for the advancement of stereoscopic photography by the circulation, criticism and exchange of stereoscopic slides. Its folios Nos. 86 and 87, consisting of twenty-three slides each, by English workers, with notes and criticisms, has just completed the circuit in this country. Comments on a few of the prints may be of interest:

A toned glossy bromide print of a village on the shores of Lake Como, Italy, taken from the deck of a passing steamer, by Mr. Smith, would show to much better advantage as a single print than as a stereogram. Quite naturally there are no foreground objects such as a successsful stereo picture seems to demand. The one who thinks expensive equipment is necessary should see some of the stereograms made by Mr. Copeman, the president of the society, prints from negatives made with a pair of single lenses. In one, that of a running stream of water with heavily wooded banks, the definition is all that could be desired, with no harsh high-lights and the water real, running water. A slide by Mr. Woodsend, made at Daphini, France, looking down the valley from La Blunde, is a perfect example of a landscape stereogram, as regards technique and stereoscopy, one of the best shown. The entrance to the picture is made by a winding path which passes a straw thatched cottage and leads down into the beautiful valley. A cloud crowned mountain peak in the far distance is the finishing touch which makes this a perfect stereogram or single picture, as one prefers.

The first folio containing slides by the members in this country will be circulated here during January, and all are very anxious to see the criticisms of their slides by the English workers, and to have the opportunity of comparing the work of the two widely separated branches.

OUR BOOK SHELVES

"Social Games and Group Dances"

We all know the difficulty that young people in particular, and older people in general, find in dispelling stiffness and embarrassment when thrown together in a social way, aside from the ballroom and the card table. In this book we have a wealth of suggestions, fully elaborated, suitable for any occasion or to any age. One can, by the simple process of familiarizing himself with the material contained in this book, always find himself in demand as one who can assure a full measure of wholesome entertainment, particularly where such variation has so much to recommend it over those forms of entertainment that are less conducive to that full enjoyment which properly directed social activities should afford. The book is handsomely printed, well illustrated with reproductions of good photographs, and written in a clear and entertaining style. Published by J. B. Lippincott Company, Washington Square, Philadelphia. Price one dollar and seventy-five cents, net.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Northern Light on the Coast

The Northern Light, so well and favorably known to a number of our professional portrait readers, is now being carried in stock by Hirsch & Kaye, the local dealers, who report inquiries and sales as most gratifying, particularly at this season of the year when daylight is none too certain and none too long in its hours of workability. Difficulties attending production during the war period have been overcome and the firm behind the Northern Light are enabled to again go after business in a manner consistent with the decided merit of their production. Other large stockhouses throughout the country are now stocking the Northern Light and it is becoming quite the thing for portrait work, even where the ordinary skylight is readily available.

What's In a Name

The question has often been asked: "Is Probus a man's name; Or what does it mean?" The Twentieth Century Cyclopedia tells us "Probus, Marcus Aurelius, one of the ablest of the Roman emperors, was born at Sirmium in the year 232." The name Probus, as used in connection with photographic products, is a derivation of probity, meaning virtue or integrity, tested and confirmed; also virtue, able to withstand tests; strict honesty; integrity. The French is probite, and Latin probita or probus, meaning good. Probus is not only "good" in Latin, but it is good in photography.

The Way It Was Done

Back in 1899, Charles G. Willoughby conceived the business which is today acknowledged as a model organization of its kind. From a small beginning in a "2x4" office in the Cable Building at 621 Broadway, New York, the present business has grown. There was laid the foundation upon which has been built the present gratifying success. There, in that little office, with a personnel consisting of Mr. Willoughby and one assistant, was written in to the ledger of the firm the triple entente of business success: Persistency, Honesty, Equality.

A square deal to all: a legitimate profit only and the giving of the best values possible were the dominant policies that were driven home with every sale. With the growth of the business came a greatly increased personnel, additions to the physical force which today has been organized into the "Willoughby Co-Workers," who are really partners in the business, for besides a liberal salary, they receive a bonus, a fair percentage of the net profits of the institution. First of all the right was given any of the Co-Workers to purchase stock at par. The by-laws were so arranged that, after a dividend of ten per cent had first been declared, the balance of profit was to be distributed, sixty-five per cent to the stockholders and thirty-five per cent to those Co-Workers who had been with the concern for a period of two years. In this distribution the president refused to participate and later it was arranged so that the stockholders would receive only sixty per cent, the remainder going to those who might share in the distribution. This plan has worked exceedingly well and has proven eminently satisfactory. Business has increased to large proportions since the organization came into being. The members of the concern resemble one big family, and it has never been necessary to install a time clock or maintain close supervision over them, as is the case in many instances where the employees have no interest in the welfare of the business.

Good Photo Finishing

The Rex Photo Finishers, of Meridian, Mississippi, have been doing some fine enlarging and kodak finishing for a limited trade, but have now decided to branch out into the mail order line. We have seen and heard of their work during the past months and feel quite sure that any of our readers who entrust their films to them will be

pleased and gratified with the results. Promptness is a part of their service and good quality is made paramount. At least give the firm a trial if you are at all dissatisfied with the work you are at present getting.

Some Real Bargains

A. Madeline, 503 Fifth Avenue, New York, is offering some very attractive bargains in high grade imported and other cameras, and it will be well worth our reader's while to get in touch with him. The prices have been still further reduced, as Mr. Madeline wishes to clear out his stock to be ready for the new supply expected from abroad. In writing him, ask for a circular covering the Ontoscope, a popular little French model of distinction.

Storing Sensitive Papers

With the advent of dull, damp weather we would impress upon our business friends the importance of providing for the proper storage of sensitive papers. Bromide and gaslight papers possess astonishing keeping properties if certain precautions are observed. The one who uses shelves and cupboards for his storage should arrange for the papers being placed on the lower shelves as near the floor as possible, particularly in a room lit or warmed by gas. The golden rule to observe is to keep all sensitive papers well away from the products of combustion, and in a cool, dry place. Dampness will also cause sensitive papers to rapidly deteriorate, and in the case of bromide and gaslight papers, the emulsion may become locally de-sensitized. In some workrooms a practice is made of exposing bromide prints and delaying development for a day or two, but this is a method which we do not recommend. We made some experiments in this direction, and found that bromide prints, exposed one day and developed a few days later, did not give anything like such good results as usual, especially those that had previously been stored in a damp place. The latent image appears to lose a large amount of the depth impressed upon it by light action. With exposed plates and films this is not so apparent, excepting in the case of damp storage. "Stale paper" is often the verdict given on paper that shows the characteristic discoloration of the edges, whereas the real reason is invariably "bad storage." Sensitized plates and papers should never be stored in a room where sulphide or hypo alum toning is done, or in fact anywhere near where sulphide fumes are likely to be present.—*Trade Notes,* RAJAR LIMITED.

Illinois College of Photography

After nine years' experience in his own studio, W. J. Wagner of Lynn Haven, Florida, has returned for a special course in air brush and background work.

President and Mrs. Bissell have just returned from their annual visit to their daughter, Mrs. J. F. Magee, who resides in San Francisco. As is always the case, they report an enjoyable trip.

The cosmopolitan attendance at the College is attested by the register for one of our recent classes showing that within a few hours were enrolled a Cuban, an Italian, a Japanese and a Mexican.

Master Signal Electrician J. N. Hillhouse, with us in 1912, has been detailed to take charge of the photographic department at Fort McHenry, Maryland. Quite a number of convalescing soldiers are spending their time in studying this interesting work.

Captain Fred H. Seligman of Chicago is one of the recent arrivals at the College. He saw service on all the battle fronts, and the active part taken by him is evidenced by the fact that he won the Croix de Guerre and the Distinguished Service Medal.

Walter Weber left Effingham in 1901 to engage in business. He is nicely situated, and on a recent visit to the College stated that he was interested in oil, as well as photography, being the holder of some valuable oil stock. His home is now in Oklahoma City.

A new instructor has taken his place in the ranks of the College Faculty. Herbert A. Turner, a student of a number of years ago, is taking up the work in the retouching department. He has just returned from England with a newly made bride in the person of Mrs. Turner.

The champion swimmer of the Colleges is undisputably Arthur Q. Morrison of St. Louis. The length of Lake Kanagga is over five hundred yards, but Mr. Morrison has plied it four and one-half times at one stretch. He says he will never be satisfied until he is able to remain in the water all day.

CAMERA WANTS

Advertisements of the nature shown below will be inserted under this heading at the rate of fifty cents each insertion, for twenty-five words or less; each additional word, two cents extra, cash with order. Those of positions wanted inserted once free. No regular business advertisements accepted.

Hereafter, in counting words, such groups of letters, figures, or figures and letters as B. & L., $300.00, 8x10, 10½-in., f-4.5, Ser. III, No. 3, 3A, and the like, may be considered as one word. The advertiser's own or firm name can be counted as two, and any reasonable address as five words, except as the actual number of words in the latter may be less. These advertisements **MUST BE PREPAID,** and if any excess is sent, it will be returned with our acknowledgment of the order. Advertisements reaching us later than the eighteenth must be held over until the next following month.

WANTED Photographic books and magazines in exchange for figure studies and prize winning landscapes. State what you have. H. Brodine, 777 Forest Ave., New York City.

COLORING Enlarging and retouching a specialty. B. Ashworth, 626 Grove St., San Francisco, Cal.

FOR SALE 5x7 Reflex, with f-4.5 Velostigmat. 4x5 Folding Seneca, revolving back, f-8 lens. 5x7 Wide Angle Anastigmat lens. Ingento scales. T. R. O'Neill, 550 N. 8th St., Reading, Pa.

HELP WANTED An opportunity for an intelligent man who understands commercial printing and can manage an amateur finishing plant. Must be able to instruct inexperienced help and get out the work; no portrait photographers will be considered. In answering, state experience you have had and with what concern; also age and salary wanted to start. Address N. & M., care Camera Craft, San Francisco, Cal.

FOR SALE 3¼x4¼ Eastman Kodak, f-6.8 anastigmat lens in Volute shutter, plate attachment, 6 holders, $26.00. Very fine, Compact 8x10 genuine mahogany folding camera, reversible back, every adjustment, 38-in. leather bellows, 4 holders; like new, $20.00. 9½-in. f-6.8 anastigmat, in Wollensak shutter, $25.00. B. H. Graham, 2243 Fitzwater St., Philadelphia, Pa.

POSITION WANTED By man and wife in all-around portrait work; have best of references; worked in the best studios. Also good in quick finishing. Address C. W. B., care Camera Craft, San Francisco, Cal.

TO EXCHANGE Beautiful diamond horseshoe tie pin, value $225.00, for high grade portrait lens. Address M. E., care Camera Craft, San Francisco, Cal.

WANTED Cooper-Hewitt light, complete; also 5x7 Eastman view camera No. 2, Century Studio stand No. 2, and other miscellaneous equipments. What have you? Address M. E., care Camera Craft, San Francisco, Cal.

FOR SALE Miscroscope, B. & L. compound. Complete in carrying case with large assortment mounted sections. Make offer, or will exchange for R. B. Auto Graflex with Tessar f-4.5 lens, good condition. Murray Knowles, 1302 Cranford Ave., Lakewood, Ohio.

FOR SALE V. P. Speedex No. 3, with Goerz Dagor f-6.8, Compound shutter; excellent condition, $35.00. Henry Uhl, 544 S. Hobart Blvd., Los Angeles, Cal.

FOR SALE Well equipped studio in Southern Cal. Well established, old location, only studio except kodak stand. Population 4,000; rich farming community. Want to go East. Address Box 1068, Camera Craft, San Francisco, Cal.

WANTED 5x7 view camera without lens. Must be in good condition. J. M. Shively, 166 W. 43d Place, Los Angeles, Cal.

FREAK FOTO "The Milk Drinking Turtle," 5x7 print, 25 cents postpaid. Suitable for reproduction. The best subject of all my "Foolish Fotographs." Cobb X. Shinn, 23 Liberty Bldg., Indianapolis, Ind.

POSITION WANTED by married man. 10 years experience as photographer, portrait, view and commercial work. Have good 5x7 view outfit with lenses and filters. Prefer California Coast or near coast town. Otis T. Bartels, R. F. D. No. 1, Marshfield, Ore.

FOR SALE Studio in best town in Northwest; 10,000 population, price $1500.00. Address W, care Camera Craft, San Francisco, Cal.

FOR SALE Studio in town of 15,000; owner selling on account of other business. Established 19 years. Price $750.00. B. Gatlif, Eureka, Cal.

FOR SALE No. 2 N. Y. Studio outfit, complete camera and stand, takes 8x10 and 5x7 holders, $65.00. Vitax Portrait lens, f-3.8, No. 3, $95.00. Model A Century head screen, $5.00. New style oak baby poser, $5.00. Ulrich automatic print washer, $20.00. Halldorson flash cabinet and igniter, $25.00. Portable B. & J. background carrier, $5.00. No. 6 Century studio stand, $6.00. Folders with and without name. List and price sent on request. Discontinuing portrait work and doing commercial work. Want 5x7 view camera. Goodwin Studio, Mandan, N. Dak.

BARGAIN $50.00 takes 5x7 Goerz Manufoc Tenax, fitted with Goerz Dagor lens No. 2, in Compound shutter, 4 plateholders, film pack adapter and solid leather, plush-lined case. This camera has been used, but it is in first class condition. Complete outfit for $50.00. For further information, address Wallace McCleary, Box 78, Seward, Alaska.

WANTED To purchase a good studio. Would consider a partnership or working with a view to purchase. Edward N. Rogers, Laramie, Wyo.

FOR SALE I have a studio and separate 7-room residence for sale at Arnold, Nebr. Arnold is a town of 1000 people with very large and prosperous surrounding country. Only studio here. Price complete $5500.00; $2800.00 will swing the deal. Write me at once for further information if interested. Address W. E. Mowrey, Arnold, Neb.

WANTED About Mar. 1, to buy a first class studio in a good live town. Ground floor preferred; must be able to make good showing. Unless you have something first class, don't bother to answer. Address P. H. G., care Camera Craft, San Francisco, Cal.

FOR SALE Studio, on account of death of photographer; will sell studio very reasonable if taken at once. Located at Edgerton, Wis. Equipped for amateur finishing. A splendid opportunity for a young man. This is a good proposition. Address Mrs. A. C. Stone, Hopkins, Minn., R 2, Box 133, or E. M. Ladd, Edgerton, Wis.

WANTED To buy in Middle West, a photo supply and amateur finishing business. Send full particulars to S. T. D., care Camera Craft, San Francisco, Cal.

FOR SALE or exchange 7-in. Goerz Dagor, in Compound shutter. Want 7½-in. or 8-in. f-4.5 anastigmat. Address B. H. D., California Camera Club, 833 Market St., San Francisco, Cal.

CAMERA WANTS—Continued.

FOR SALE 6½x8½ Heliar No. 5, 11¾-in. focus, like new. Also 8x10 camera, R. R. lens, shutter, 2 tripods, printing frames and other stuff; S. & W. revolver, etc. Might consider some trade. H. Gunther, 2833 Sacramento Blvd, Sacramento, Cal.

POSITION WANTED to take charge of a studio or would rent one or take charge of a kodak store, or department or anything in the photo business. Am a good salesman. E. B. Phillips, Aransas Pass, Tex.

WANTED To buy 1 pr. of condensing lenses 9-in. diam.; must be in good condition and reasonable price. Julius Johnson, Y. M. C. A., Duluth, Minn.

POSITION WANTED By middle-aged photographer. Permanent address is Lock Box 145, Iroquois, Ill.

FOR SALE or Exchange 6x12 Al Vista camera, solid leather case, good condition, $15.00, or will trade for 5x7 camera, F. P. Raab, Box 53, Moulton, Tex.

FOR SALE Studio doing better than $1,000.00 per mo., at Sacramento, Cal. Address S. A. C., care Camera Craft, San Francisco, Cal.

FOR SALE Unbound vols. Camera Craft, 1912-13-15-17. Popular Photography, 1913-14-15. American Photography 1914, last half 1916, 1917. Amateur Photography Weekly, 1914-15, 1st half of 1916. All or any C. O. D. or trade. Sutton, 175 S. First St., San Jose, Cal.

WANTED Prints and post cards of nude young boys and lads; also nude and costumed juvenile negroes, Indians, grooms, boy scouts, boys in kilts, juvenile acrobats, circus performers, etc. Samples and letters to H. L. Z., care Camera Craft, San Francisco, Cal.

POSITION WANTED as receptionist and general assistant; also to pose, by young European, well educated, fine physique, speaking and corresponding in 6 languages, with some knowledge of photography, now in Colonies; preferred with studio with principal clientele of actors, performers, etc. Address H. R., care Camera Craft, San Francisco, Cal.

POSITION WANTED Young man, fine physique, already posed before artists, wishes to pose for the nude and in antique and Oriental costumes preferred, together with young boys. No objection to any pose. Also for movies. At present in Colonies. Address N., care Camera Craft, San Francisco, Cal.

FOR SALE South Seas studio. Leading studio with best equipped curio shop, jewelry depot and private home with all comforts, suto house, etc., located in one of the most picturesque islands. Ideal climate; no competitor for high class work; fine opportunity and great future for a good all-round business man. Owner desires to retire for health reasons, after many prosperous years. Price wanted $7000.00 cash. For more particulars address Editor Camera Craft, San Francisco, Cal.

WANTED Studio or position, by a first class operator who is an expert in every branch, having over 20 years experience; conscientious, careful worker; would like to take charge of a good studio only, with the option of acquiring half or whole interest. Can invest $1,000.00. Please give full particulars in first letter. Address O. H., care Camera Craft, San Francisco, Cal.

FOR SALE No. 3 V. P. Speedex, with Goerz Dagor lens, in Compound shutter. Excellent condition, $30.00. Henry Uhl, 544 S. Hobart Blvd., Los Angeles, Cal.

FOR SALE or Exchange, 8x10 portrait outfit complete; Aristo lamp with printing cabinet; lot of large white card mounts. Want 3A, 4A or 5A Dallmeyer lens. V. Janisch, 720 Olive St., St. Louis, Mo.

FOR SALE Small city studio, doing exclusive portrait trade. Owner's health failing. Regular clientele. Artistic Coast landscape and other pictorial work selling well. Negatives go with studio. Write S. W. L., care Camera Craft, San Francisco, Cal.

FOR SALE 4x5 R. B. Auto Graflex, 18½-in. draw, Cooke Anastigmat, Ser. II, f-4.5, 8.2-in. focus. 3 double holders and film pack adapter; as new. Make offer. Liberty bonds accepted. Jas. G. Clark, 308-10 Ohio St., Sedalia, Mo.

WILL YOU spend another winter east? Age, breakdown in health and strongest appeal from family forces me to sell my photo supply, kodak finishing and commercial business. Successfully established many years. Studio started also and doing well with most promising future. Best climate in California. A gift for $1500.00 and best proposition from Maine to Pacific. If you have no ready money or cannot leave at once, don't inquire. I have no time to go into details with curio hunters. Address Kodak House, care Camera Craft, San Francisco, Cal.

FOR SALE Only studio in growing town of 3500 in prosperous Southern California valley. Worth $1200.00, will take $800.00 cash for immediate sale. Other interests demand attention. Address M. E., care Camera Craft, San Francisco, Cal.

WANTED 3¼x4¼ R. B. Graflex or Reflex, with lens; must be latest model and perfect condition; give description and price. M. Walker, 250 E. 1st St., Los Angeles, Cal.

WANTED Victor Flash Cabinet, studio size, second-hand. Give condition and price wanted. G. V. Barker, Grangerville, Ida.

WANTED Air brush outfit; state make, condition and price. Address E. S., 462 8th St., Oakland, Cal.

FOR SALE 8x10 Century Studio outfit No. 7; like new; also other things. Bargain prices. Photographer, 1360 Page St., Phone Park 5501, San Francisco, Cal.

RARE OFFER Will trade 10 acres Bay Co., Florida, near Lynn Haven, on St. Andrews Bay; has oyster bed, 60 to 70 peach and pecan trees; place for boat landing; excellent winter resort. Want 5x7 Home Portrait Graflex with No. 7 Goerz Portrait Hypar f-3.5 or equal lens. F. Scharlach, 338 4th St., Effingham, Ill.

FOR SALE Rare cameras in new condition. Voigtlander Alpine 3¼x4¼ or 9x12 cm. Collinear f-5.4 lens in Compur shutter, 16 holders and adapter for 3¼x4¼, 12 holders and adapter for 9x12 cm., complete with case $100.00. Goerz Manufoc Tenax 4x5, Dagor lens in Compound shutter, 3 single and 6 double holders, adapter and leather case, $100.00. 3A Special Kodak, fitted by Newman & Guardia, London, with their patent finder showing action of the rising front, Zeiss Kodak lens, Compound shutter, $60.00. Lloyd Stereo roll film camera, takes standard size stereo pictures, Heckla anastigmats, Compound shutter, leather case, $75.00. De Luxe Kodak, 3¼x4¼, Goerz Dagor lens, Compound shutter, brown morocco case to match camera, $45.00. A. I. Root, 3006 Pacific St., Omaha, Neb.

WANTED 4x5 R. B. Graflex or Reflex, with or without lens. Price must be reasonable, and camera in good condition. Address R. H. D., California Camera Club, 833 Market St., San Francisco, Cal.

FOR SALE Are you a photographer? Are you looking for the biggest bargain ever offered. If so, investigate my established photo studio, photo supply, framing and all photographic store. All fully equipped and modern; no dead stock. Doing $10,000.00 annually. Net profits over $350.00 per month, guaranteed. Largest and most modern city in Alaska. Climate summer like California; winter milder than any eastern state. Living cheaper than outside. Base of construction for Government railroad now building to interior. Terminal for Government coal fields now being opened. Congress appropriated $6,000,000.00 for this season's construction of railroad; also $1,000,000 to open up navy coal fields. Will sell for invoice, which is about $6000.00. May consider some terms but if you have not the required amount please do not take up my time. Bank and other references. Address, Eastman Dealer, Box 1647, Anchorage, Alaska.

CAMERA WANTS—Continued.

FOR SALE Old established, good paying studio, 45 miles from San Francisco. Thorough modern equipment up to 8x10, including flash cabinet, printing cabinet, enlarging camera with an arc light; large rooms, low rent, good location. Town of 10,000 with wide surrounding country trade. Address G. A. Goehner, 23 Western ave., Petaluma, Cal.

WANTED Negatives of Yosemite Valley. Will buy scenic negatives of all kinds. Address D. E. A., care "Camera Craft", San Francisco, Cal.

ART PROOF Prints, size 8x10, from prize winning landscape negatives for sale. Sample print 35 cents postpaid. Harry A. Brodine, 777 Forest Avenue, Bronx, New York.

FOR SALE Bergheil Tourist, Model C, camera, 3¼x4¼, Collinear lens, Compound shutter, film pack adapter, 3 metal plateholders; A-1 condition, $50.00. L. C. MacDonald, Azusa, Cal.

WANTED 5x7 long focus hand camera; also 5x7 convertible anastigmat lens in Acme or Optimo shutter. Give full description. O. E. Longtin, 3602 Mono Ave., Fresno, Cal.

WANTED Cooke Telar lenses Nos. 1, 3 and 4; also Goerz Kino Hypar, 20-mm. focus. G. Snare, 704 N. Hobart Blvd., Los Angeles, Cal.

FOR SALE Studio, centrally located in Stockton, which is known as the best business city of 50,000 population, with the best future in California. Other interests compel attention and must sell. Buy now and get the benefit of the holiday trade. Nograft Studio, 424 E. Main St., Stockton, Cal.

FOR SALE Auto Graflex, Jr., with f-4.5 lens, case and film pack attachment. Worth $100.00. Will sell reasonable. Address A. W. Young, care Camera Craft, San Francisco, Cal.

WANTED Voigtlander Portrait Euryscope lens, f-4.5, about 16-in. focus. State condition and price. Address Photo Studio, 2217 Shattuck Ave., Berkeley, Cal.

FOR SALE 5x7 Korona View, case, 6 holders with 12-in. B. & L. Universal lens in Volute shutter, $20.00. 6½x8½ Reflex, $15.00. 5x7 camera with Thornton-Pickard focal plane shutter and carrying case, $15.00, cost $90.00. 5x7 Graflex, focal plane shutter, $5.00. 9½-in. Vinco Anastigmat in barrel, never used, $30.00. 7-in. Collinear, $25.00. 3¾-in. Protar wide angle, $10.00; also miscellaneous supplies. A. R. Brown, Melrose Highlands, Mass.

WANTED Amateur finishing establishment. Prefer retail store with finishing department, but will consider either good store with Eastman line, or finishing business alone. Give detailed reply. Address P. W. E., care Camera Craft, San Francisco, Cal.

RETOUCHING For particular photographers, specialist on retaining character. Colorist. Special attention given to out-of-town work. Prompt service, right prices. Emerson Beers, Room 119 Callaghan Bldg., 1112 Market St., San Francisco, Cal.

WANTED A hustler. If you are right man will give you working interest in studio, or sell half interest. Prefer one with some studio experience. Murray Studio, Kentland, Ind.

FOR SALE Eastman No. 3 Folding Pocket Kodak, f-6.8 anastigmat lens, Volute shutter, plate back, 6 plateholders, $26.00. Fine condition. Benj. Graham, 2243 Fitzwater, Philadelphia, Pa.

FOR SALE Ground floor studio, north S. S. light, fully equipped. Town of 2000 with clientele of 15,000; no competitors within 20 miles; 5 rooms connect with studio; all modern, light and water. Price $500.00. Holiday trade will cover purchase. Address Box 288, Fortuna, Cal.

FOR SALE 5x7 Auto Graflex, 7 holders and 2 hand-made genuine leather cases; one for camera and one for 6 holders. Condition No. 1; without lens, $60.00. Bingham Studio, Rogers, Ark.

EXCHANGE Old Town Charles River Model Canoe for good camera. Send description of what you have to Walter Curnutte, Rivesville, W. Va.

FOR SALE Zeiss Tessar, IIB, in Volute shutter, fitted to 4A Kodak, with tripod. List $97.50; for quick sale $60.00. Dr. A. Lipman, 811 Phelan Bldg., San Francisco, Cal.

WANTED Vest Pocket or other small camera with f-4.5 lens. Must be a bargain. Give full particulars and price in first letter. Raleigh K. Smith, 401 Fourth St. N. W., Washington, D. C.

FOR SALE 5x7 Empire State View camera, tripod and plateholders. Very fine lens, $20.00. Write for details. L. O. Christensen, Castle Rock, Colo.

WANTED 2D Dallmeyer lens; also half size Darlot Portrait lens of 9-in. focus. Dan McCann, Connersville, Ind.

FOR SALE Carl Zeiss, IC Tessar, 30 cm. (12-in.) focus, in barrel, $175.00. Carl Zeiss IC Tessar, 21 cm. (8¼-in.) focus, in Koilos shutter, $80.00. These lenses are new, never having been on a camera, or used. Also has B. & L. Zeiss Tessar IIB, 6⅞-in. focus, used, but condition like new, in Compound shutter, with original barrel also; priced $45.00. L. F. Holmes, 2110 Beaver Ave., Des Moines, Iowa.

FOR SALE Studio, well equipped with best modern apparatus, doing good business in portraits and amateur finishing. Good location, ground floor. I shall soon retire from the trade and it will pay you to investigate if you want a good business at very reasonable price. A. N. Cunningham, Hollister, Cal.

POSITION WANTED By an experienced photographer in every branch. Was at one time leading photographer in town of over 30,000. Would like to return to the business. Will take entire charge of a small studio at a moderate salary, or on a percentage basis. Can give bond. Good operator, retoucher, printer, dark-room man and commercial photographer. Address T. P., care Camera Craft, San Francisco, Cal.

FOR SALE Complete studio outfit, viz: Century Camera No. 5, Goerz Lagor f-6.8 lens, 6½-in. focus, posing chair and stand, studio scale, etc. Reasonable. Address C. E. S., care Camera Craft, San Francisco, Cal.

FOR SALE 3¼x4¼ Voigtlander Collinear, 4¾-in. focus, in Compound shutter. A-1 condition. List $50.00, will take $25.00. Dr. A. Lipman, 811 Phelan Bldg., San Francisco, Cal.

SPOT CASH and highest prices for your camera or lens. Write brief description of what you have. We will make you a cash offer by return mail. If you wish, you may send your goods, subject to our offer, and if our offer is not satisfactory, we will prepay charges on your goods in returning them to you. **Bass Camera Co., 109 N. Dearborn St., Chicago, Ill.**

We will pay you the highest price for your camera or lens. Furnish us with the best description you possibly can and you will receive our trade or cash offer. If you prefer, you can send in your goods subject to our inspection and then, if our offer is unsatisfactory, we will return your goods charges prepaid. **Central Camera Co., 124 So. Wabash Ave., Chicago, Ill.**

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No cockling or curling on album page or mount with

KODAK DRY MOUNTING TISSUE

Convenient and clean—it isn't sticky till it has left your hands. You press the iron, it does the rest.

10c. a package

EASTMAN KODAK COMPANY,
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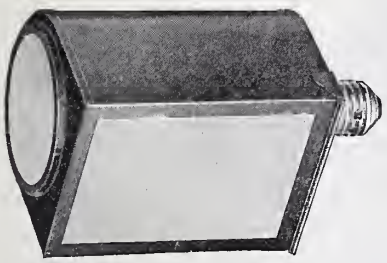
At your dealer's.

For the dark-room



Brownie Safelight Lamp

Price, $1.50

A handy, inexpensive means of obtaining proper dark-room illumination. The lamp screws into an electric light socket so that the ordinary electric light may be converted into a safelight almost instantly.

Kodak Safelight Lamp

Price, $3.50

This lamp answers every purpose, not only of the amateur, but of the professional. Regularly supplied with a 5 x 7 Series 1 Safelight, for use with films or plates, not color sensitive. The Kodak Safelight Lamp may be fitted with safelights of other series as desired, so that the correct illumination for even the most advanced work is assured. The price of an extra safelight, any series, is $0.75.

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ROCHESTER, N. Y.

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When you find this seal you have found a chemical or chemical preparation you can trust.

EASTMAN REDUCER

is one of the Eastman Tested Chemicals, as the presence of the seal of safety on the container indicates.

Eastman Reducer, far from staining, removes stains and has the valuable property of reducing the high lights of a negative without affecting the shadows to the same extent.

Price, per box of five tubes,

50c.

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ROCHESTER, N. Y.

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The KODAK ANASTIGMATS

f.7.7 *f*.6.3 and *f*.4.5

The *esprit de corps* of the Kodak Lens factory, where Kodak Anastigmats are fashioned, logically results from the common pride of skilled workmen in exacting craftsmanship.

EASTMAN KODAK COMPANY,
ROCHESTER, N. Y., *The Kodak City*

IF you ask at the store for a Kodak camera, or Kodak film, or other Kodak goods and are handed something not of our manufacture, you are not getting what you specified, which is obviously unfair both to you and to us.

"Kodak" is our registered and common law trademark* and cannot be rightly applied except to goods of our manufacture.

*TRADEMARK: Any symbol, mark, name or other characteristic or arbitrary indication secured to the user by a legal registration, adopted and used, as by a manufacturer or merchant, to designate the goods he manufactures or sells and to distinguish them from the goods of competitors.

STANDARD DICTIONARY

If it isn't an Eastman,
it isn't a Kodak

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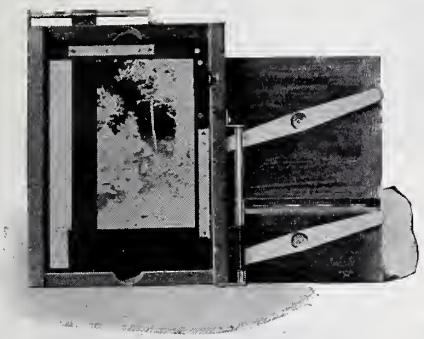
PRINTING FRAMES



Kodak Auto-Mask Printing Frame

Price, $1.25

The mask of thin metal built in the frame itself, may be instantly adjusted to fit any of the amateur size negatives. The correct relation between negative and paper, once fixed, may be maintained for any number of prints without readjustment.

Maskit Printing Frame

The Maskit Printing Frame successfully overcomes the difficulty of negative and mask slipping on the glass and expedites the making of prints with uniform white margins.

THE PRICE

Kodak Maskit, 3¼ x 4¼, opens two-thirds	$0.45
Kodak Maskit, 3¼ x 5½, opens two-thirds	.50
Kodak Maskit, 5 x 7, opens two-thirds	.60

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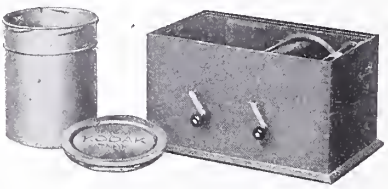
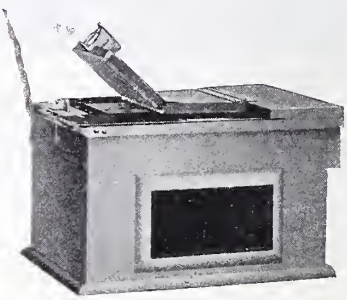


Kodak Film Tank

Price, $3.50 up

For Developing



Kodak Amateur Printer

Price, $7.50

For Printing

The combination of the Kodak Film Tank and the Kodak Amateur Printer makes every amateur his own finishing department.

EASTMAN KODAK COMPANY,
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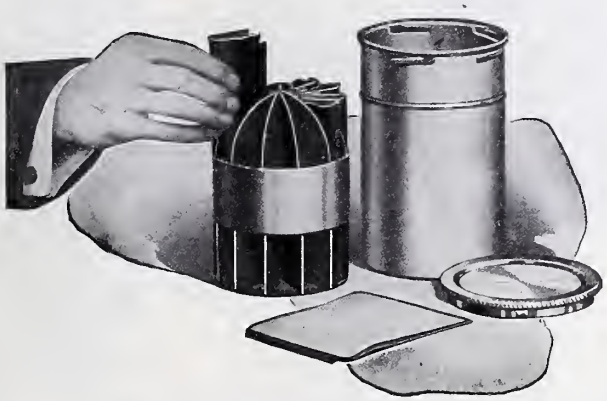
Better Negatives—Better Pictures



Premo Film Pack Tank

THE modern method of development greatly simplifies negative making for the amateur who wishes to do his own work.

The exposed films are placed in a tank containing a developing solution of standard strength, at a certain temperature, for a definite time. It is only necessary to follow the simple instructions provided with Premo Film Pack Tanks to be sure of the best possible results in negative making.

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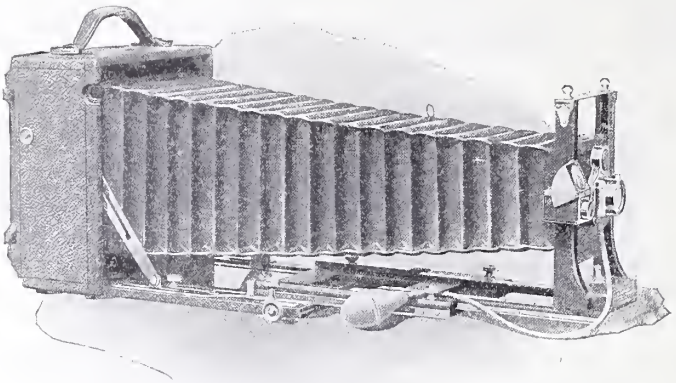
EASTMAN KODAK COMPANY

Rochester Optical Department ROCHESTER, N. Y.



The R. B. Cycle Graphic

A camera built to meet the exacting requirements of advanced photography.

The great bellows capacity permitting the use of lenses of different focal length; the focusing back that can be revolved from horizontal to vertical positions without removal; the adjustable back swing and lens board; the adaptability to Photo-micrographic work of medium magnification; and the compact, rigid construction, all contribute toward satisfactory results with this practical camera.

Catalogue free at your dealer's or by mail

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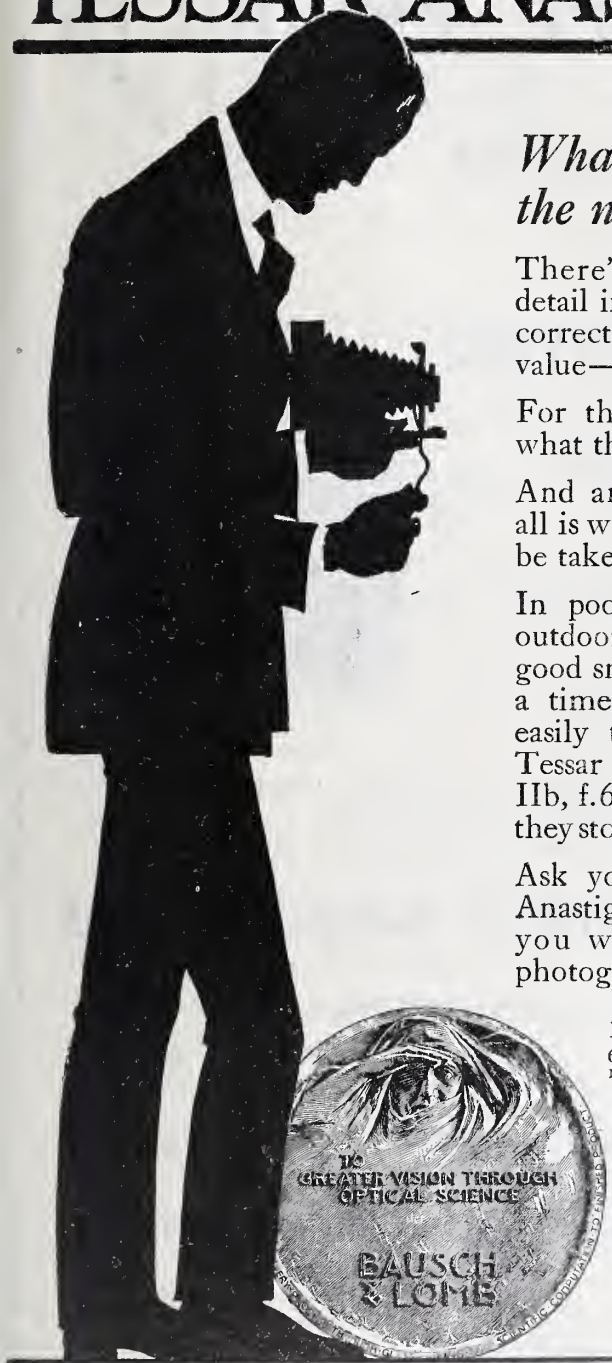
TESSAR ANASTIGMATS



What will the negative show?

There's density and definition; detail in high lights and shadows; correctness of perspective; color value—consider all these.

For the negative *can* show only what the lens throws upon it.

And any picture worth taking at all is worth taking as well as it can be taken.

In poor light—cloudy or rainy outdoors, on porches or indoors—good snapshots—better than many a time exposure—can be made easily through Bausch & Lomb Tessar Anastigmats (Ic, f.4.5., or IIb, f.6.3). And in bright sunlight they stop the fastest action blurlessly.

Ask your dealer to put a Tessar Anastigmat on your camera. Then you will see how pleasurable photography can be.

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Leading American Makers of Photographic Lenses, Microscopes, Projection Apparatus (Balopticons), Ophthalmic Lenses and Instruments, Photo-micrographic Apparatus, Range-finders and Gun-sights for Army and Navy, Searchlight Reflectors, Stereo-Prism Binoculars, Magnifiers and Other High-Grade Optical Products.

Bausch & Lomb

"KAUFFMAN" PRODUCTS

FOR THE

PHOTOGRAPHIC TRADE

OVER

300

"KAUFFMAN" DRYERS

SOLD

In All Parts of the World
in Three Months

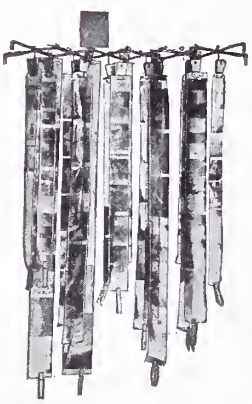
WHY?

Ask the Man Who Owns One!

Made in Five Sizes
A Dryer for Every Size Studio
Gas, Electric and Gasoline Heated

AUTOMATIC LIGHTING AND AUTOMATIC CONTROL OF TEMPERATURE OF HEATING ELEMENT ON GAS DRYERS

A Distinctive "Kauffman" Feature



"KAUFFMAN" Multiplex Film Rack

Another "Kauffman" Achievement

CUTS YOUR HANDLING COST OF FILMS
75 PER CENT

"KAUFFMAN" FILM DRYERS

Another "Kauffman" Achievement

DRIES FILMS IN FOUR MINUTES

MADE IN THREE SIZES

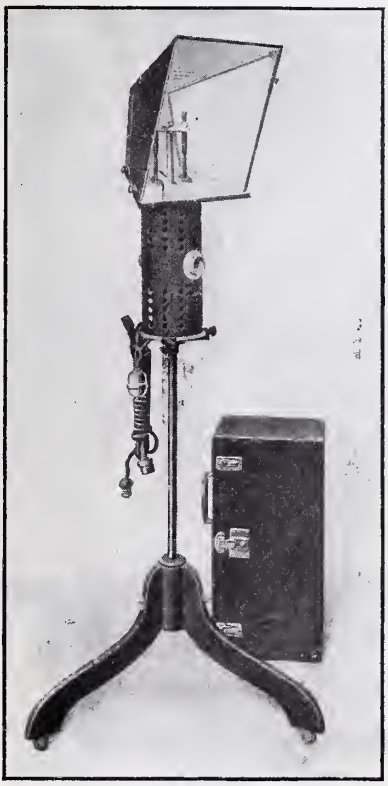
Kauffman Engineering Company

ST. LOUIS, U. S. A.

NIGHT or DAY

with the

New Model 1919 SIMPLEX NORTHERN LIGHT No. 1

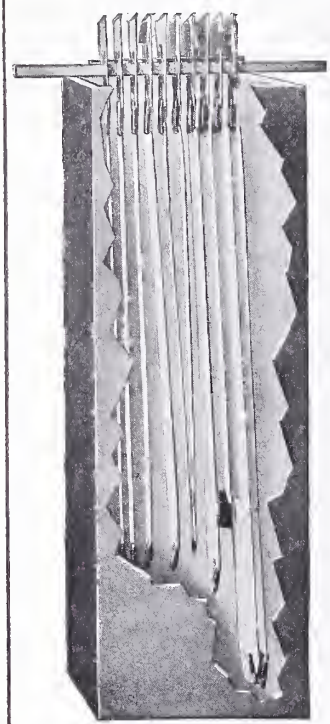


15 Amperes
10,000 Candle Power

:: PRICE ::
$75.00

¶ Permits exposure, 8x10 plate, ¼ sec., using f-4.5 lens. A. C. or D. C. current. Can be attached to any house circuit by simply removing bulb from socket and connecting light in its place. Straight reflectors supplied with all models of Northern Light unless 45° angle reflector, as in illustration, is specified.

SIMPLEX PHOTO PRODUCTS CO.
RICHMOND HILL :: (LONG ISLAND) :: NEW YORK



Rapid Finishing Helps

PA-KO ROLL HANGER keeps film and order record together throughout the processes of developing.

Easily and quickly loaded and unloaded.

Enables you to handle rolls in groups.

After developing one movement separates individual rolls for drying.

Brings service up to high efficiency with reduced labor and handling.

The PA-KO FILM CLIP provides for quick work and sure work.

One-half inch opening with stop guide insures quick loading in dark room.

The special extra-wide jaw distributes the grip and prevents tearing film.

Film cannot adhere to clip nor come in contact with flat surface.

Made of heavy materials for long wear — heavy enough to make ideal "weight" clip for tank developing.

Sample clip on request.

Photographic Appliances Corporation
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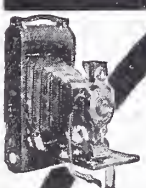

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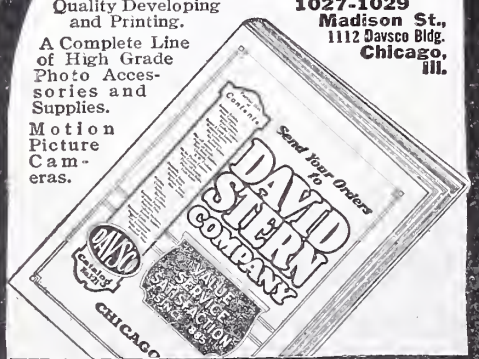

THE LARGEST

and most comprehensive

CATALOGUE

ever offered to camera enthusiasts. Your copy is ready. Send in your name and address right now, while you have this notice before you. Cameras, kodaks, lenses and supplies of every description are listed in this catalogue, at the very lowest possible prices.

EVERY ITEM GUARANTEED

besides, you have the privilege of testing the outfit you purchase for ten days, after which time, if you are not satisfied, you can return it and we will refund in full.

REMEMBER, TOO, THAT WE PAY TRANSPORTATION

on all orders amounting to $5.00 or over for new cameras, kodaks or lenses, excluding view outfits and accessories.

WE BUY OR TRADE OUTFITS

Perhaps you have one you wish to trade or sell. Send in a complete description of it and we will make you the very best offer in cash or trade.

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Dept. B-30

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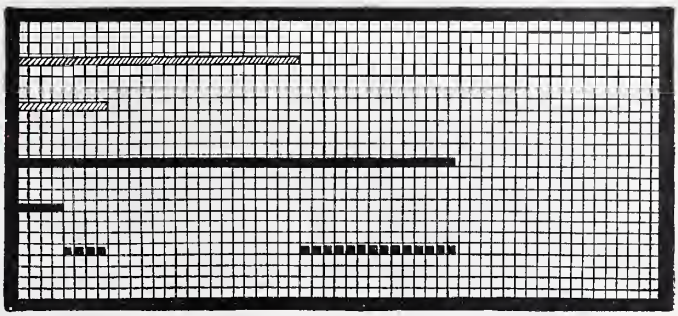
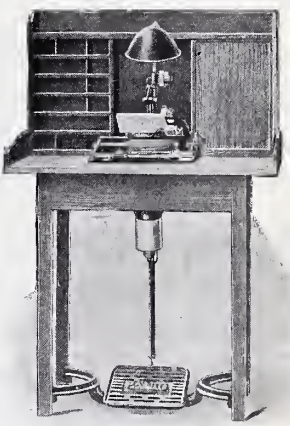
Volume without PA-KO Equipment . . . . .
Labor Cost without PA-KO Equipment . . . . .
Volume possible **with** PA-KO Equipment . . .
Reduced Labor Cost **with** PA-KO Equipment . . .
The saving and gain actually effected by PA-KO . . .



ADD 50% WITH PA-KO EQUIPMENT

Operating under a fixed overhead PA-KO Appliances increase your output 50%—at the same time materially reducing the labor cost. These machines were developed by the compelling needs of high pressure work and possess all the ***practical*** features that contribute to rapid work of high character.

The PA-KO Printer



Remarkable speed—250 prints an hour—attained by foot treadle operation, leaving both hands free.

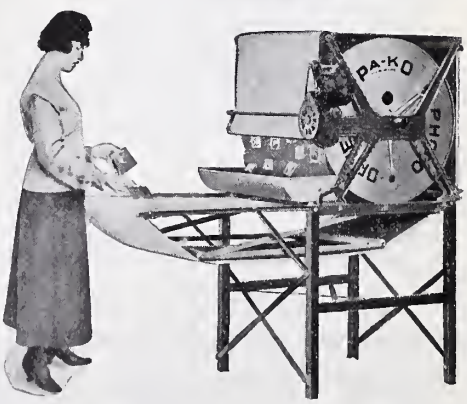
Automatic numbering device marks each print.

Universal masking members—operate on slide rods, notched for popular print sizes. Easily adjusted.

Accurate register makes uniform margins.

Other exclusive features that deliver increased profits to finishers.

The PA-KO Dryer



Speed and heat are both adjustable to accommodate every size and weight of paper.

Special apron eliminates side creeping.

Extremely satisfactory results assured without specially trained operators. Practical simplicity and dependable work makes the PA-KO Dryer a 24 hours a day profit-maker in the best equipped studios.

If your dealer cannot supply you, write direct to

Photographic Appliances Corporation

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When You Choose a Shutter

Choose for Accuracy and Reliability. That Means the Top Notch of Satisfaction, and You'll Get It in an Ilex.

Fits all makes of cameras

First notice the escapement on the set of gears which controls the slower speeds. This escapement allows the different exposures to be timed correctly with positive variations of speeds.

Second is the auxiliary speed adjuster which controls the higher speeds, also gives the exact variations. This works independent of the above mentioned set of gears on the high grade Ilex shutters, therefore exact speeds and variations are absolutely assured on every indicated speed, *under any climatic condition or in any position of the camera.*

You will note from the cut that this is a combination of creative genius and mechanical skill which makes the Ilex the only serviceable shutter manufactured.

These are exclusive features originated by this Company and marketed with complete and wonderful success.

United States Government is using Ilex Shutters. "Use an Ilex and avoid shutter trouble." Write for our 1920 catalogue. At your dealers.

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ACTUAL SPEED 500 H. & D.

The Fastest Fogless Plate in the World

Ideal for cloudy days and late afternoons

Used by nearly all the press photographers

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4 x 5,	" "	- -	1.30
5 x 7,	" "	- -	2.20
6½ x 8½,	" "	- -	3 20
8 x 10,	" "	- -	4.80
11 x 14,	" "	- -	12 00

To be had through dealers. Special prices in case lots.

John Wanamaker

New York Philadelphia

Sole American Distributors

HOW MANY

of that last roll of films you had developed were too thin to make prints from?

You can save them at a few cents' cost. Simply immerse them in **Victor Intensifier** until desired density is obtained.

PRINT obtained from the half of the negative which had been intensified for one and one-half minutes in Victor Intensifier.

This side shows PRINT obtained from the half of the negative which was not intensified.

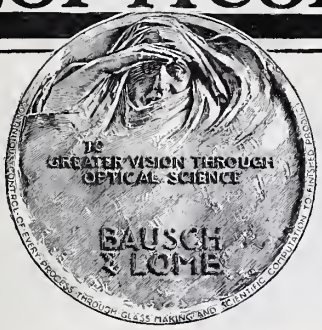
YOUR DEALER CARRIES AND RECOMMENDS IT

Sizes	PRICES					
No. 1	Powder,	makes 4	ozs.,	25 cents.	By mail	30 cents
No. 2	"	" 8	"	45 "	"	50 "
No. 3	"	" 16	"	85 "	"	90 "

Jas.H. Smith & Sons Co. 3541 Cottage Grove Ave. CHICAGO

Bausch & Lomb

BALOPTICON



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WHICH "gets" a thought "across" faster—word or picture? Why are "movies" quicker educators than books?

Why are "illustrated" talks better attended than *all-word* lectures?

Visual education—education through Bausch & Lomb Balopticons, particularly—is recognized now as the quickest means for making people understand.

Didn't *pictures* bring the war to us faster, more vividly, than words?

As for the quality of Balopticon pictures—Balopticons are Bausch & Lomb products. That guarantees the quality of the pictures.

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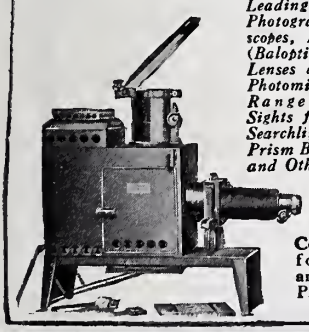
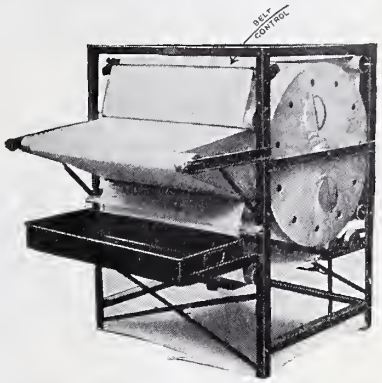


Leading American Makers of Photographic Lenses, Microscopes, Projection Apparatus (Balopticons), Ophthalmic Lenses and Instruments, Photomicrographic Apparatus, Range Finders and Gun Sights for Army and Navy, Searchlight Reflectors, Stereo-Prism Binoculars, Magnifiers and Other High-Grade Optical Products.

Combined Balopticon for Lantern Slides and Opaque Objects. Price . . . $150.00

Bausch & Lomb

Simplex Auto Print Dryers



WITH AUTOMATIC BELT CONTROL

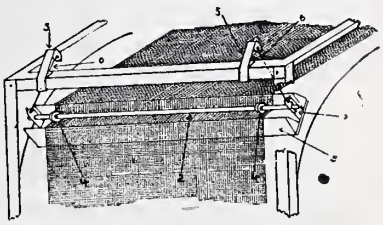
Dries any kind of print quicker and better than any other device known.

Gas Heated with General Electric Motor, $175.00 up.
Electric Heated with " " " 225.00 up.

F. O. B., N. Y.

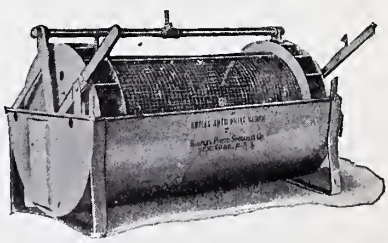
Belt Control for Simplex Auto Print Dryer

ALL MODELS



Belt Control can be installed on old models. Price, with new retaining belt, **$17.50.**

Duplex Auto Print Washers



Require no water pressure. Only Washer on the market washing large size prints without injury. Automatic lift makes it unnecessary to put hands in water to take outprints.

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PROBUS is a preservative paint or varnish manufactured especially for photographic purposes. It will not affect the most sensitive solution and is impervious to the action of any of the chemicals used in photography. Applied to wood, fibre or similar compositions, tin or iron, it renders the material proof against water, acid, alkali and rust.

PROBUS lends itself splendidly to the home production of wooden trays, sinks and similar receptacles used in photographic workrooms. Used as a paint for shelves and floors, it means a clean, dry dark room. A half pint trial tin sells for 35 cents and will save almost as many dollars.

Pint 65c Quart $1.00 Half Gal. $1.65
One Gallon $3.00 Five Gallons $13.50

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The kind you are sure to use with continuous satisfaction

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Important to Photographers

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SCREEN Pat. Pending

The Latest and Greatest Labor Saving Device.

Thousands of skilled photographers lack time for retouching of negatives. THOUSANDS OF OTHERS LACK SKILL.

THE ARTOGRAPH SCREEN BLENDS THE HIGHLIGHTS INTO THE SHADOWS WITH A STIPPLED EFFECT AND TAKES THE PLACE OF THE EXPERT RETOUCHER.

NO Time NO Skill Required

SEND FOR ONE TO-DAY

Endorsed by SARONY and Other HIGH CLASS PHOTOGRAPHERS

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Color Photography—With a Brush

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PEERLESS
JAPANESE TRANSPARENT WATER COLORS

The world-famous "self-blending colors"
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These photographic colors are the acknowledged standard. They are the original colors put up on films or paper leaflets. They are for sale at all photo supply dealers and art shops. Price lists on application. Illustrated catalog for 2c. stamp. For further information address

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AMERICAN MADE

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DEVELOPING AGENT

Rexolon is a new universal developing agent. Rexolon offers unusual, distinctive and important advantages over all other developing agents.

1. Rexolon is chemically pure and lasting.
2. Rexolon is distinctive for the non-oxidizing qualities. It will stand in an open solution twice as long as German metol
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4. Rexolon is a soft developer, greater contrast can be obtained by the addition of bromide, which within certain limits does not affect the tone.
5. Rexolon will produce good blacks and whites even if the negatives are under or over exposed.

Rexolon is being rapidly stocked by all photo dealers. It will pay you to give it a trial.

Put up in one, four and eight ounce bottles, also in one pound bottles.

One ounce bottle.....$1.35

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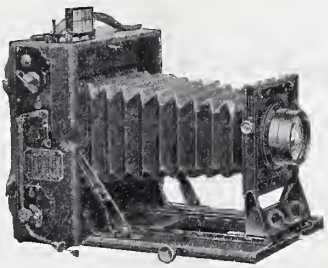

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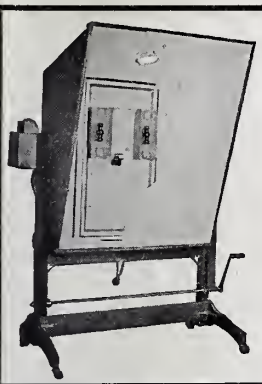

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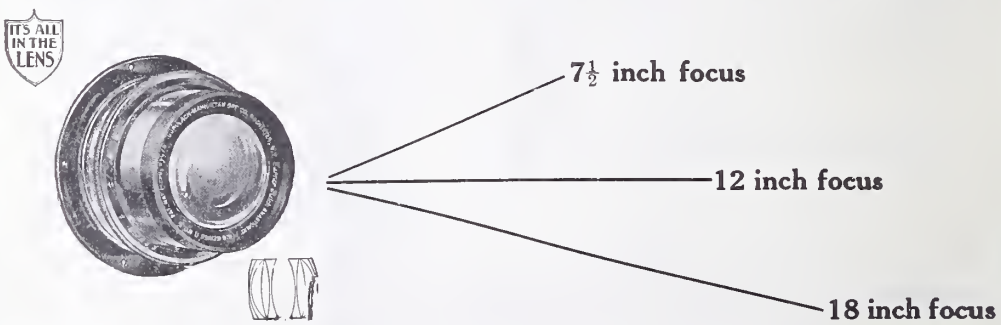

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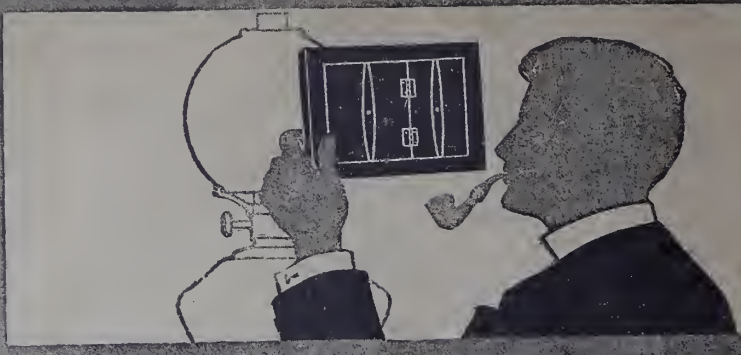

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